# COMPUTERWORLD

## Users greet Timeplex sale with relief

BY JOANIE M. WEXLER

the wake of Unisys Corp.'s





#6300000000000000000 5-DIGIT 48183 SITY HICROFILMS IN

## Technology heroes honored



by of 60 Minutes presents a Computerson an Award to Paul Kaiser of The Lab School of Wa an Award to Paul Kaiser of The Lab School of Wa

## Cheers, caution as DOS upgrade hits the street

Users like features but plot measured migration

BY PATRICIA KEEFE

## Open up — this is the software police!

BY MICHAEL FITZGERALD



#### Apple notebook crowd forms | Wall St. score Buyers ready to give totable Mac another chance for RS/6000

BY JAMES DALY

BY MARYFRAN JOHNSON

NEW YORK -- In a \$65 mill

#### INSIDE

## IN THIS

#### NEWS

- 4 Employees and users alike are waiting for lightning to strike at Wang, as analysts profict stormy weather for the end of the firm's fiscal fourth quarter.
- 4 Development directors at U.S. firms have the vision for business and uner partnerships — but not the wherewithal.
- b Cognoe opens Winlowe of opportunity with its owerhouse 4GL and a bluewint for porting Powerhouse opplications to a client/ error architecture.
- 8 With one hand preparing to shell out a reported \$190 million to the Pentagon, Unions holds out its other hand for \$207 million in exchange for Timeplex.
- 12 Surprising only for its speed was the announcement from NCR and AT&T'a Computer Systems Division as to which products will rise and which will fall.
- 13 Cabletron and Silicon Graphics are concecting a recipe for tighter network control by crossbreeding their promising network management sys-
- 16 Rather than look a gift computer in the mouth, users of relic systems are intrigued by IBM's trade-in offer crediting competitors' machines toward new PS/2s.
- P3 IBM's quartet of newly announced PS/2s is priced to be music to users' ears.

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#### Quotable

"W hile [Unizye] ownership of Timeplex has not had much tangible impact on us, its presence has given us to to explaining to do to executive man-

impact on us, its prasence has given us a lot of explaining to do to executive management at product acquisition time."

> LUE CHOSSAN UE SMEELD OF MICHIGAN Extrapion relief at rafe of

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ment III Apple will lose weight tratthis fall in the form of three notebook Macintonhes, one their reportedly weighing as little as 5 pounds, Potential cussumover the current 16-pound Macinton portable, while

EXECUTIVE BRIEFING

■ Prudential Securities will replace Unisys minicomputers with a RISC server/PC architecture during the next two

years. The Wall Street brokerage firm hopes to realize productivity gains with IBM's Unix-based RS/6000 and as many as 10,000 PS/2s and terminals. CIO William Anderson

says the increase in power is 'like going from a PC to a mainframe.' Page 1.

■ Hybrid IS organizations that combine the strengths of centralization and decen-

tralization are becoming a popular choice for

many large firms. Data center operations are being consolidated, while applications devel-

opment teams are placed in specific business units. Each firm must find its own balance, as

exemplified by the approaches taken by Computerworld Premier 100 industry leaders Paine Webber, 3M and FMC. Page 57.

momers hall the improvement ower the current 16-pour Macintosh portable, wh Apple will try to make up 6 portables market. Page 1. ied S III Turbulent change computer law is expect over the next ten years. A vances in networking as

ware Publishers on for using aller d program

Unioys sells off Ti olex for \$207 milion data sharing and increas vendor alliances are pu pressure on lawyers are era to shape the industry galfuture. Page 65.

sponsibilities has sever advantages, IS professions say. Rotation gives a broad perspective of the busines improved interpersonal skill more technical proficies and better interdepartment communication. Page 76.

III C programmers wi write applications of Unix find themselves at the head of the jub-hunting cla as Unix gains popularity the commercial acctor. Page

M On-aite this week: do you handle a hungry of base? Dialog Information: vices in Palo Alto, Calfpends on increasingly de disk drive technology to a its more than 1T byte of line information. Plage Imaging technology is hel

line information. Page imaging technology is the General Development, a mi-based construction out of heakruptcy. O disc systems are cuttin cost of processing thou of claims by the firm's of the processing thou

#### The 5th Wave



IT'S NOT THAT IT DOESN'T WORK AS A COMPUTER, IT JUST WORKS BETTER
AS A PRIFERENTIALT:

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Best features.
Best value.
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## Systems development stalled

Survey respondents find frustration with old code, obsolete skills

#### BY CLINTON WILDER

r obsolete shill sets of veter-regrammers, according to a vey released last week. We puter-sided software engi-ing (CASE) may not present magic-bullet cure. he second annual survey, better the second annual for better the second annual for better the second annual for puter the second annual for maker, inc., poiled 142 de-ment directors in 11.5.

nt directors in U.S.

CS. Insert, see, pease at an effective with average revenue of \$4.1 billion. Although 50% said the control tower business and our part-northine, she manorch revealed tower business and our part-northine, she manorch revealed tower business. The control tower business are control tower business and the control tower perspective for training systems analysis in business produces analysis in business produces to the progress for training systems analysis in business produces to the progress for training to the second control tower progress for training to the second control tower to the second control to the second control to the second control tower to the second control tower to the second control to the second co

ing more for the money ing staff productivity harsted past di cture to become the leading concern

menting CASE tools

moon with CASE tools. Only about 25% of the respondents have implemented CASE tools, and less than 5% use reverse-en-gineering, simulation or object-

oriented methodologies. A more encouraging 38% said they use reusable code modules, but In-dex acknowledged that "reus-able code" could encompass a

focts of the mostifice, "Electronic good between the most of the top of the insens mixing Last year 19 ks. I issue, canning Last year 19 ks. I issue, chitecture, "drupped to Bearth "Dealing with sustainance, systems desolutence and migrature to the state of the sta

mproves ink adhesion.

The printer produces color ages at the slow rate of one age every two minutes and is med at the high-end graphic

med at the high-end grapma: to market. The fechnology should trickle win to the office environment thin one year, analysts said.

"A machine that sits on the sistop needs to be faster and so exposaire," said Dan Miller, senior industry analyst at Data-seet, face. "But the fact that it rints on plates office paper is sally important in an office envi-nment."

#### COMPUTERWORLD

· IUNE 17, 1991

#### Wang denies layoff rumors. awaits results of fiscal 04

BY SALLY CUSACK

3,000 in March.
However, Wang President
of Chief Executive Officer
ichard Miller said last week
at the company has no plans
we for either employee cuticks or selling off portions of

business.

Miller said the company is iting to evaluate the results of a fiscal fourth quarter, which dis June 30, before embring

"There is no plan at this point; we don't want to overreact or underreact," Miller said. Wang posted a net loss of \$48.9 million for the facul thrid quarter on March 31 this year, compared with a net loss of \$146.6 million for the corresponding quarter in 1950.

Matthew J. Gilman, of Fingle Uhers, said runner of a compary takeover have been creating some concern among the user.

takeover have been creating some concern among the user group? a numbers, most of whom have adopted a wait-and-see attitude toward Wang's financials.
Wang's next segment of Orifoce 2000 product introductions had been scheduled for this week, Miller said the amounted when the said the amounted was the said the amounted to the said the said that the sa

BY CAROL HILDEBRAND

Low-cost color printer debuts

New printing technology from Tektronix, Inc. could pave the way for color to hit the desktop without hitting up users for a big church of color.

without nitting up there are a one chunk of cash.

The Wilsonville, Ore.-based company is slated to announce today the Phaserjet PXI, a color today the Phaner et PXI, a color printer that accepts nearly any type of paper in a variety of sizes ranging up to 12 by 18 inches. The printer differs from other ink-jet printers in that it does not

require special coated paper to produce high-quality, 300 dot/in. Priced at \$9,995, it is app

imately one-third the price of existing color laser printers offer-ing the same resolution, accord-ing to Tektronix spokesman A. J. Rogers, strategic marketing

The Phaserjet, stated to be available in July, also supports Adobe Systems, Inc.'s Post-script Level 2. Most important



These days, it seems almost everyone has a fevorise Capith all ther Interface (CAI). And most opportunations also have non-graphical user interfaces running on block mode sereminals, character mode terminals and PCs. Which means that developees must speed months rewriting each application for each incompatible systems. Unless the applications are built with Oracle\*

Unless the applications are built with Oracle'
Tools.

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Software that more on all your commuters

### NEWS SHORTS

led offerts on Wall Street in firms are linding out that mother's afric can also work to a company's economic advant you'de initiative may lady companies that of rates on comman telecommunications equipme, called the Securities Industry Network, calls to standarding on moderns, line types and other to

Facce-lift for RS-232
The vestrable RS-333 interface standard for computer connections, which dates lack to May 1960, has been upd to include a small alternative connector for use on soid outputers and other small devices, exceeding to the Tele-seminations Industry Americation in Weshapton, D.C. over 333-E interface opening the contract of the Tele-seminations Industry Americans in Weshapton, D.C. over 333-E interface opening the contract of the Tele-semination in the Contract of the Contr

iew Carbon Copy released white the Min-beed Microon, fac. said it is shipping Car-Copy Plus Version 6.0. The new version allows systems ministrators to manipulsic personal computers over a local-man and the second state of the second systems of the second in the second signature of the account systems of the second signature of the account systems of the second signature of the account systems or will account say operating machine on a Novel. Inc. otherwise or IBM Nethous acrows after conscients with one worked PC with a smaller, Carbon Copy Phu costs 1199.

PP, NCR join forces
Reviet-Nechel Co. menusced last wet that it will work in NCR Core, as in in design bedougher to manage with NCR Core, as in in design bedougher to manage until they found complementary idea in reparrie, appeared they maked the last feet of prime for more produce supervises (DCP). The OP could not present the production of the feet of prime for more produce supervises (DCP) and could be a supervised by the country of the Core and the Core and

income, Fujinsu tighteen ties com Systems, inc. mid it has extended its relation for Ltd. to include a joint metheting and develop general with the Japanese company's shadings general with the Japanese company's shadings or and Circon dichalese products to Consider Or ey will also work tagether to part the Cincon pro yet also work tagether to part the Cincon pro yet also work tagether to part the Cincon pro yet and the control of the Cincon pro-tee of the Cincon products and the Cincon on and Australia, a company goalesman and.

Framework gets boost
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More neur shorts on page 92

## Novell announces Netware for SAA

PROVO, Utah — Novell, Inc. said last week it is shipping Netware for Systems Application Architecture (SAA) Version 1.0 and offered a peek at the network-to-mainframe comeantications product is next iteration, due in August.

Originally scheduled for shipment last month, Netware for SAA is a software modale that

SAA is a software moduse that provides up to 64 concurrent IBM mainframe or Application System/400 sessions over To-kee Ring or synchrouse data link control connections. Novell has often previewed the SAA product, saying it would provide 1,000 host sessions.

current line of DOS-based porta-bles — around \$3,000. "I hope they can alim it down without lightening my wallet," said Ar-thur Masson, director of transportation system development at CSX Technology in Jacksonwille, Fin.

Early indications are that the
Sony notebook will retail for ap-proximately \$2,400, while the
midrange will cost about \$3,100.
Both will start with 2M bytes of

coun will start with ZM bytes of random-access memory and a 20M-byte hard disk. The high-end model is expected to sell for approximately \$5,000 with 4M bytes of RAM and a 40M-byte hard drive.

hard drive.

The trackball pointing device will be centered below the space bar, although a standard mouse can be added. Sealed lead butteries will offer up to three hours of useful time. useful time.

Another important consideration is that the "display technology has got to feel and look like a Mac, not like it was just thrown together," Masson said. Early reports are that the new models will use backlit LCD screen technology.

nologies that also offer manual brightness controls.

A second effort
Apple's earlier portable was a disastrous missier in a rearket that
Framingham, Mass-based International Data Corp. estimattend will grow by 37% this year —
more than five times faster than

the growth rate in the desktop PC field.

Period.

Rick Marcit, information systems manager at Great Central manager at Great Central in the Control of t

Apple PROM PAGE 1

However, 'neither Version 1.0 nor 1.1 later this summer will come close to that mark, accord-

ing to a company spokesman.
"We've got machines just stacked around here," said Brad Dickey, a senior analyst at Conoco, Inc. in Houston. "We've got oco, inc. in nounces, we we give host-access servers, file servers, database servers ..."

Dickey had yet to see Netware for SAA but said it could cut down on the number of dedicated machines apread throughout his combined 6,000-

computine that now have to buy and maintain gateways.

Gerry Machi, director of product marketing for Novell's communications products, said the company of first markins version of a product.

Netween for SAA Version.

Netween for SAA Version.

Netween for SAA Version will provide up to 25% concurrent seal with the product of the company of the company of the concurrent seal and the company of the concurrent seal and the company of the concurrent seal and th

workstation network.

A memory server.
Robert Biello, neinor data communication specialist at Blue is expected to show all logic matrices.
Cross/Bise-Shield of Rhode Island, added that there would be a pic, which are connected.



have been and the post-up de-mand for an adequate portable Medication is no great that prof-cer developes could be fait as-tropic for the profit of the pro-tor developes of the fait as-troduction of the immensible propair Medicardo Columi. "All of the people with quest the last propair Medicardo Columi." All of the Particle are gring to jump on these mechanisms." and then from, a neither profit of the pro-tor of the profit of the pro-position of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the pro-tor of the profit of the profit of the profit of the pro-tor of the profit of the profit of the profit of the pro-tor of the profit of the profit of the profit of the pro-tor of the profit of the profit

Apple's partnership with minis-turisation giant Sony could help it steer clear of those shoals. The Sony connection could also represent an important signpost for Apple, which is ex-pected to absardon its propri-etary architecture soon and be-

system. "Apple is starting at zero in a very hot market, and it's very likely that you'll see Sony selling these products as well," said Benny Lorenzo, an analyst at Dillon Read & Co. in New York.

## Cognos goes client/server

ANUMENTAL CASE. Softwire concitors told a more than 700 steep. The contribute developer Coppes Copp. Plactices developer Coppes Copp. Plactices developered products on the contribute Coppes C

The key to Version 7.0's (k

The key to Version 7.0's (lex-ibility is a contral repository stored on an Ashton-Tate Corp., Interbase database that contains "generic" descriptions of the screen formats that are used by a Powerhouse Version 7.0 appli-

cation.

Cognos also introduced a
Powerhouse version for the IBM
RISC System/6000 and an enhanced version for Digital Equip-

## BENCHMARK 425 IDSB

On March 12, Oracle\* recorded the highest TPC Benchmark\* B rate ever: 425 tpsB on a VAXcluster. And the fastest TP1 score ever on January 21st: 416

425 tps8

416 tps

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tps on an IBM-compatible mainframe.

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42 tps

151 tps

## Progress, problems for Unisys debt plan

BY BLLIS BOOKER

thisys will focus on "provid-g mission-critical solutions on en networks in high-transac-or environments," he said. The Timeplers deal in the larg-t move to date in an asset-sale

\$3.3 billion.
Uninys has generated \$500 raillion in cash from the sale of Timeplex, various real estate haldings, a portion of its equity in fix Japanese joint venture and just two weeks ago — \$131 million worth of lesser receivable-backed certificates from its leasting arm. Uninys has end for debing arm. Unings they give in \$500 million gray. The part is \$500 million gray to the part in \$500

Timoplex was purchased in January 1968 for 10 sulfion Uni-nys shares, which were then seli-ing for \$33 per share. At the time, the value of the transaction was \$330 million. "We are not taking a loss, and we may report a slight gain," a Unitys spokesman said. Since 1988, the book value of the sub-

Devaine Oumn to re-Separate U.S.-based

▶ \$207 million cash sa slated to close Aug. 31.

New owners: Arcom Holding AG (\$2 billion empany and 51% part-er) and South African ercodes Information

Pinancial observers who had edicted Unisys would sell off tions equipment unit agreed. "Because of accounting rules.

The timing of the sale was sig-nificant, Schofield added, Ulsa-sys, he sald, wants to complete stress to complete to which the sale of the sale of the public note matters on Sept. 15. On the reported Pentages settlement, a Univers policement public note matters on Sept. 15. On the reported Pentages settlement, a University of the sale of

the North Warring radar system contract and contingency pay-ments based on possible asset sales and the company's return to prodicibility.

Unity's said it did not believe that the actilement package would have a "material financial impact" on the company, the

impact" on the company, use spokensma said:

Unitys does have some cushon for the penalty, however. In the third quarter of 1999, it as said: \$150 million, the majority of which it said was for the Penagon case stems from the government?

"Operation III Windt" investigation just oillegal activities of military contractions.

tion into illegal activities of man-tary contractors.
Meanwhile, analysts apecu-lated that an end to the III Wind case may actually bring the \$10 billion corporation closer to a larger strategic goal: that of seli-ing its defense unit and hoosing its business along the lines de-basiness along the lines de-scribed by Unruh last week.

## Timeplex

Timeplex's strength from a ser-vice and marketing standpoint." Unitys, which purchased Time-plex in early 1988, reported a \$3.3 billion debt at the end of its first quarter in March (see story

ve). Uninys has been a dark d," said Michael Acker-in, systems engineer on the work services staff at Blue in/Blue Shield of Michigan in roit. "While its ownership of epiex has not had much tan-

o given us a lot of explaining to to executive management at diact acquisition time." However, government users re-re less updest. Some said they are concerned about Time-ria now-foreign ownership the fact that one of the new mers is based in South Africa. William Mickin, manager of bureas of telecommunica-nees the micking and the con-traction of the con-trac

e bureas of telecommunica-os for the city and county of n Francisco, said the owner-ip issue will prohibit him from nusdering Timepies in an up-ming bid because of strict city of county orthonness against ing business with any South

ment-owned facilities," he said. He added that the sale "will cer-tainly came us to do a lot of sour-searching on future procure-ments."

ness with any foreign-owned firm, Timeplex President De-waine Opman said. Government sites reportedly represent about 8% of Timeplex's business.

Mot on fasses
"In a legal sense, I don't think there's an issue for government agracies buying products from a South African entity," and first Richard Malane, principal at Vertical Systems Group, a market research firm in Dedhum, Mass, "All the local and federal agency," what is not concerned with regulations concerned with South African senctions say you cannot be an investor in a South African venture, not the other

way around."

John Paccibene, vice presi-John Paccibene, vice president of telecommunications at brokerage firm Garban Ltd. in New Kirk, called foreign conter-sialp "a trend being led by the likest of AT&T and IBM. Tech-nology is a global insee. Aucom is eager to make introds into the U.S. and will probably make Timeplest more aggressive."

customers, Osman said, "will have the same service, sales and management people dealing with

Timegies customer Jack Sadler, group manager of technical ser-vices at Lucky Stores, Inc. in Dublin, Calif., said that when Un-inys bought Timegles, the noticed field and management personnel changes that made his relation-ship with Timegles. "Iess desir-able than it had been."

## IRS to overhaul system in bid to reduce its reliance on paper

BY CAROL HILDEBRAND

WASHINGTON, D.C. — A mas-sive system overhaul at the In-ternal Revenue Service holds promise of an IRS that not only

promise of an IRS that not only answers questions more promptly but also pries tax dellars out of reductant pock-ets more successfully.

The 48 billion task, some segments of which are already under way, was announced last week. The multipromped effort when the transpection system in the transpection system. the tax collection system sway from a paper-inten-sive process supported by isolated and outdated pro-cessing to a totally inte-grated electronic system.

grated electronic system.

"There's got to be a reason that every other using financial institution in the country has gone this way," IRS protectional Henry Heinres said.

The project, under development for nearly three years, includes the following broad grait:

"Streamlining service. Such projects as the Tanapser Service Integrated System will give IRS' representatives databases that integrated System will give IRS representatives databases that allow them to quicidy access in-formation needed to answer que-ries, which will cut down the number of manual searches, folable the agency to update taxpayers' records of payments quickly. The agency said it will eliminate 95% of notices that

turns in 1990.

• Updating collection tech-

Tax man goes techie The IRS is embarking on a 10-year automation plan

\* Implementation fines: Full completion targeted by the year 2000 \*Estimated costs S8 billion.

niques. Networked databases of information should allow for more efficient enforcement. Today, only about 2% of the IRS' tax account data in on-line.

\*Turning paper into elec-tronic data. Using an imaging system to convert paper docu-ments into electronic images, the IRS will then maintain data on integrated databases that provide on-line access to tax pay-er information.

out on the sti have a treasurious impact on al-most every aspect of the IRS. "You can't just look at the tax system modernization as a A Senate h change in technology," he said.

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existing applications with new ones.

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access transparently through CICS — ensuring that all requests meet current transaction management, security, and monitoring requirements. In addition, SYBASE allows MIS to regulate network access to specific transactions, regions, and data jources. With SYBASE MIS is always in control.

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frame applications don't have to be rewritten. SYBASE is the only product that lets you effectively turn your mainframes into servers as you deploy new LAN-based applications on VAXes, UNIX, OS/2, and DOS-based platforms, Macintoshes and others.

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## Wall St.



cial sales of the Unix-based platform first introduced in February 1990. In Prudential Securities' branch officer network at this point, Un-changed in the computing scenario is the corporate data center in Brooklyn, N.Y., which is anchored by an IBM 3090 Model 600,

work." Anderson said. "With LU6.2, we can share the same communication network, and that gives us the shifty to making on the same line." In Productial Sociarities, "On the same line." In Productial Sociarities," domestic branches, the PS/2s rolled out in 1933 will replace the Convergent FCs. Lained by an IBM Token Rong network, the production of the same line. The same line is the same line is the same line in the same line is the same line. The same line is the same line is the same line is the same line. All processing, line. (ADP), a market data vendor, will convoid the software that drives the outset the outset.

rigent PCs.

e expected tenfold jump in reliabilfers to the difference in mean time
en failure for the Convergent PCs
ed in 1994 and the new PS/2s.
ron Walker, an analyst at Moody's
tons Service in New York, said the
000 in making "very definite in-

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## Hyatt rewards IS downsizer

CHICAGO — Hyatt Hotels Corp. Ins week rewarded Gordon Kerr for an appli-cation downsizing job well-done by pro-moting him from vice president to senior

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Improved support staff effectiveness

improves support shall retectives the varieties of the varieties of the varieties with the online receivables application, it's not easy to explain every detail of the screen image to the help desk in Chicago. And in troubleshouting, detail makes a big difference. CIL/CONFERENCE allows the support staff to share a session with the end user and view the exact screen while discussing it on the phone. Problems are resolved faster because time isn't wasted trying to figure out what the user is describing.

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CL/CONFERENCE, trainees can follow along at their terminals and ask questions over the phone as the session

unfolds. Alternatively, they can operate the application from their location while the trainer observes what they do. Better communication for better business decisions The vice president in Dallas needs to massage sales goal figures with the eastern regional sales manager. With CL/CONFERENCE, they can watch each other's entries on the screen without leaving their own offices. They can change mainframe spreadsheets, agendas, or marketing plans. And produce hard copies when they agree on the

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!Candle

## AT&T, NCR sketch product continuity plan

Tower will go, but NCR System 3000, AT&T 3B2 among those to survive

#### BY MICHAEL FITZGERALD

NEW CHLEANS — The Tower will fall, but few other product will fall but few other product and ATAT'S Computer Systems Deviation has been as they outlined plays for merging their product lines.

The plan, which was presented to ATAT's computer solve force, was the first computer sales force, was the first computer sales force, was the first computer sales force, was the first computer part of the product of th

ers. NCR's System 3000 series will remain intact, and so will remain intact, and so will such products as ATAT's 382 line of minicomputers and System 7000 line of high-end parallel processors — at least in the short term.

What we're doing to a great ent is interrating what ex-CR's SYSTEM

nay introduce. NCR's Tower ine of Motorola, Inc.'s 68000-

o On-line transaction proces-nor (OLTP): NCR's Too End

Office automation environ-ments: NCR's Cooperation package and AT&T's Rhapsody will be merged into Cooperation 2.0 to be released late this year

or early next year.
"There's no question that ev-

on an important strategic issue, it went to NCR," said Thomas Nolle, president of CIMI Corp. in Voorhees, N.J. Nolle said, how-ever, that the 7000 and 382 upgrades "may be a turking mine-field" because of their incompat-ibility with NCR's Intel Corp.

based strategy.
Under the plan, AT&T resellers will begin selling NCR equipment July 1.

## Your business

becomes the future direction of both companies. ists," said Gilbert P. Williamson, NCR's president and future chief executive officer.

3000 strategy

the amouncement.

They have to do it in this sort of gentle way," said Judith Harwitz, editor of the newletter "Unix in the Office," published by Patricia Seybods of Geocompute of the Computing Group in Boston. Hurwitz cited a particular need to protect customers with recent investments in AT&T executions.

equipment.
Chris Christiansen, an analyst
at Meta Group, Inc. in Westport,
Conn., said be considered the announcement "very positive in

nouncement "very positive in that it's rare to see two computer companies come to an agreement about product consolidation so quickly and doctoiredy."

As it stands, NCR's System 3000 strategy becomes the future direction of both companies. Among the specifics of the plan are the following:

Personal Computers:

plan are the following:
Personal Computers:
NCR's Micro Channel-based machines will stay, while AT&T's
Extended Industry Standard Architecture machines will go. Safari Systems, the laptop joint
wenture between AT&T's Computer Systems Division and Marubeni America Corp., will sell its
Safari Japtop as high-end portable, while NCR's 3120 portable.
while NCR's 3120 portable. one, write NCK's 3120 portable will remain as a low-end offering. • AT&T 3B2: Users will be of-fered an upgrade in July to a chip set made by Mips Computer Sys-tems, Inc. This will be the last









## Cabletron, Silicon Graphics form net link

BY JOANIE M. WEXLER

Cabletron Systems, Inc. and Silicon Graphics, Inc. said they will announce a cross-breeding of their well-received yet neophyte network management systems today. The result, users said, could be a blue-blooded system that greatly reduces headaches in managing heterogeneous, distributed corporate networks. The size of data-taden nettheir importance to businesses' bottom lines. The result: a need for tight network control that is expected to yield a 75% boost in Fortune 1,000 network management budgets during the next two years, according to Business

search firm in Newton, Mass.

The two vendors appear to be addressing that trend with the intent to integrate Cabletron.

Simple Network Managemen Protocol (SNMP)-oriente Spectrum enterprise management.

graphical network traffic mo tor. The two vendors said th will continue to offer the sy tems as stand-alone products well.

Loop forward

unce network management by we years," said Dan McCornick, manager of networking ad integration at GTE Contel ederal Systems, a Netvisual-

pects to purchase the integrated product. "Ironically, I almost purchased Cabletron's Spectrum instead of Netvisualizer," he said. "However, at the time, I didn't have the need for SNMP management that I have today."

ingeneric tast nave today.

Spectrum is Cabletron's

ix- and artificial intelligencemed management system,
sich provides a top-down view
networks and allows there to

ange and reconfigure netorks actively from a central

selectric.

workstation. Netvisualizer is Silicon's three-dimensional network monitor that produces graphical real-time views of network traitine views of network traitine views of network traitine views of network traiting to the produce of t

Time-serve

"The attractive thing about [Subcon it] alliance with Caleleron in that it brings SNMP capabilities such as remotion," and Nexty sushier user Rick Fairbourned data communications specialin at Westinghouse Idaho Nuclea Co. in Idaho Falls, Idaho. "Car rently, we trajpee halfway acros our plant and speed an hour to di fire misoutes' worth of work."

Lehman Beothers in New York is currently in negotiations for Spectrum. The remote capability is important because if the network gets overloaded, the first thing you have to determine is who is on the network and what they're doing. That becomes immediately apparent with Netvisualiser," said Victor Duchowni, senior systems anlyst at Lehman Brothers.

are stand-alone hardwan software devices that sit on an monitor network segment. They will become another its on the 40-odd int of device type managed by Spectrum. As management device, Netviss lizer passes to Spectrum info mation about a whole netwo

Spectrum started shipping in April. With more than 30 betatest users, the vendor has stated sales goals of 100 systems in the first year. Netvisualizer has been on the market for approximately one year and is installed at about





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## IBM tries PC trade-ins — again

BY RICHARD PASTORE

WHITE PLAINS, N.Y. - IBM's a WHITE FLABS, N.Y. — IBM's account stab at a personal computer trade-in pro-gram, amounced last week, is more liber-al than its first, and it may turn out to be more popular as well. IBM's offer last week to let Personal System(22 buyers trade in older bones and even non-IBM cogipment for new PS/22 pipped the in-terest or users who are maddled with refi-PCs that cannot adequately mn one worlt-

purchase new FS/2s through the end of the year. Reaching into the markets of its competions, IBM will also provide trade-ins for continents old Apple Computer Cap. Dones — mailtaining the man crotted for the continent of the purchase of the computer Cap. Dones — mailtaining the man crotted for the computer of the purchase of the computer of the purchase of the computer of the system of the mailtaining of the continent computer of the continent co

reg on which new 1-y2 the customer in-tends to buy. Trade-in rebots will range from \$200 to \$1,200, IBM said.

The program is more generous than IBM's trade-in attempt in 1988. That necomby maintaining an electronic mal

hodoup, be said. The Baltimore bank has approximately 35 XT-Cans boxes out 200 PCA. Tignandle said BM's concept has appeal for the bank, which has found it financially difficult to upgrade clotter PCs on a large note.

Brenn for the bank, which has found it being noted.

Brenn for the said to the problem. At County Privated I. In. a problem. At County Privated I. In. a problem. At County Privated I. In. a contract to the contract because the network software resides in extended memory and thus requires a more advanced box, projects.

ware reasons in extension mentally and thus requires a more advanced box, project analyst Bruce feel naid. Some dealers are also esthusiastic about the program. "It seems impressive in terms of price, and if that's the case, if should be successful" in generating new nales, said Matt Pitusiannous, owner of a Computerland Corp, franchice here.



BY RICHARD PASTORE

FORT WORTH, Tezas — Discount supervitores have finally sucreeded in plucking the biggest plane in the personal computer industry, even as traditional dealers are forced to consolidate to stay silve. Ridowing done behind superstore subnorisations by Apple Computer, Inc., and Compage Computer Corp., Tandy Corp. amounced plane last week for a subnificary suspensive chain that will ned-subnificary suspensive chain that will ned-subnificary suspensive chain that will ned-

rt and service were suspect.
"Corporations like us are looking for a

serters. Whether big names will change this reporate opinion of superstores remains be seen. Compaq does not expect its provide customers to shift to super-ners; it is hoping to make its products ore accessible to the small business and number markets, said Dougha Johns, a menicipat of occupants markets.

consumer markets, sand Doughas Johns vice president of corporate marketing.

Some industry observers said they expect superstores to handle \$5 billion in revenue in 1992. By 1994, these mass merchants could command earn't 20% of U.S. PC sales, while traditional dealers' share erodes to 38%, according to Dataquest, line.

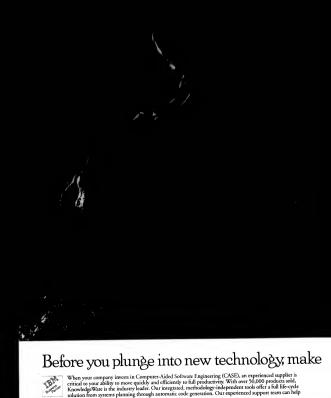


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#### ADVANCED TECHNOLOGY

#### TECH TALK

#### Damming the data deluge

 Scientists at Los Alamos iational Laboratory have deped a new model, called Electronic Data Publishing. for disseminating research information. Under the plan, ientific data bypasse mical journals and flows directly into a computer da-tabase, where it becomes immediately accessible to a worldwide community of researchers. Electronic Data Publishing reflects a drama change in the way research ers share data and will also ke it possible to distribute data that is too massive in scope for conventional scientific journals. The scientists developed the plan to cope with the deluge of data ing from efforts to dede the genetic makeup of nans and other life forms.

#### Interactive teaching aid

m The U.S. Department of Education has awarded the National Science Teachers sociation \$400,000 to fund the production of the first compact disc-interactive (CD-I) science project in the U.S. CD-I is a multimedia technology on 4.7-in. optical isc developed by Phi and is slated to debut as a co sumer product this year. The grant will be used to de velop a disc that will help ate school science and math programs and improve teaching in the subject areas

#### Controlled chaos

- Chaotic behavior obey simple laws but ones that are so complicated that events ay seem to occur at rando rever, chaotic behavior is not random; it is just extremely sensitive to existin conditions. If you find such reasoning, well, chaotic, then perhaps Chaos Demor strations is what you need. The IBM Personal Comput and compatibles software package was designed to al-low users to interactively plore basic concepts of chaotic dynamics. It costs \$70 and is available from Physics Academic Software and North Carolina State Univ sity in Raleigh, N.C.

## On the road with computer routing

Complex chips calculate efficient paths for traveling salespeople, circuitry and more

#### BY MICHAEL ALEXANDER

uter scientists around the world are concentrating on a mathematical challenge that may one day allow computer chip makers to produce more complex chips and save money at the same time. The challenge, called the traveling salesman problem, is slowly giving way under a combination of brute computational force and sophistied software designed to solve the re than 150-year-old problem.

The traveling salesman problem is attempt to find the shortest tour around a collection of cities for a travel er who has to stop only once at each location and then return home to his

starting point.
Finding the shortest possible route has practical applications in areas as di-verse as the design of computer circuitry to arrine route management. For ex-ample, solving a traveling salesman problem could be used to determine the most efficient way to drill thousands of holes in a circuit board to accommodate wiring and chips. Finding the quickest and shortest path to drilling the holes could save a manufacturer a substantial

nount of money.

The problem is more daunting than it may seem at first: Suppose a sales-person planned to visit 10 cities on a sales tour and then return home. Bee any one of 10 cities could be visited first, and any one of the remaining nine could be second, and so on, finding the route with the shortest total mile uge with 100% accuracy would req

multiplying 10 x 9 x 8 x 7 and so on for the possible number of tours. The product is 3,628,800. The problem becomes increasing

complex as the number of cities in creases. For example, an 11-city tour would boost the number of calculations to 39,916,800 to arrive at 100% accu-

Computer scientists have solved problems with 2,392 cities and are pre-paring to tackle a 3,038-city prob-

Theoretically, given time and enough computesman problem of any

solved, said David Johnson, who heads the mathematical foundations and com-puting department at AT&T Bell Lab-oratories in Murray Hill, N.J. Johnson and Jon Bentley, another Bell Laboratories computer scientist, are recog

in solving traveling salesman proble For example, Johnson has desert oftware code that will get within 1.5% of an optimal solution for a tour of 100,000 cities within 12 minutes. Bentley has solved the 1 million-city

ree to four hours. To find the optimal solution to a problem would exponentially increase the complexity and time needed to solve the problem. Instead of two or

three hours, the problem could take 1,000 times as long to solve, Johnson

te for practical application, John son said. In many instances, the last 1% or 2% may be enough to cut in half the time needed to complete a task. Some tasks, such as using a laser to drill holes in a circuit board, may not

> It is not certain wh the traveling salesm problem orig ed, but it is be-lieved to have ple publi Germany

1832. The final chapter urged readers schedule sales tours so as to cover as any locations as possible without vis-

lanford Padberg at New York Uni versity's Courant Institute of Mathematical Sciences and Giovanni Rinaldi at the Institute for Systems Analy act solution to a traveling salesman problem. The two calculated the opti-mal tour of 2,392 cities in 1988 using a method developed by researchers at

## Supercomputer speed records under siege

BY MICHAEL ALEXANDER

upercomputer speed records are being set up and knocked over like bowling pins.

In March, researchers at the University of Tennessee declared a parallel computer built by Thinking Machines Corp. to be the world'a fastest. Last month, an Intel rnia Institute of Technology (Ca) tech) grabbed top speed honors. Only a few days later, the record went to a newly unveiled Thinking Machines sunputer. Last week, computer sts at Caltech and Intel said the record was firmly back in their hand

ercomputers are playing an in-agy crucial role in solving sod "grand-challenge science prob-"Super-fast, high-performance times are being used for such tasks odeling and aimulating global clifaint and complex signatures of bin pulsars and visualizing scientific data returned from the National Aeronau

returned from the National Aeronan tics and Space Administration a Gaille and Magellan spacecrafts. On June 4. Thinking Machines is troduced a machine that is 50% faste than current models and can be share by more than 100 users at one ti The CM-200 is capable of perform The CM-200 is capable of perform 9,03 billion mathematical calculati per second to solve a set of linear eq tions used in the Lispack benchma The speed is only slightly faster that that set by the Touchstone Del which handled 8.6 billion calculation

per second on May 31. In one recent benchmark tent, the suchstone Delta topped out at 10.2 Touchstone Detta toppen our at au., billion calculations per second, and it will probably go to 12 billion calcula-tions per second after initial diagnos-tics and other tests are completed, said Elliot Swan, manager of product and technical marketing at Intel. "It's the

The speed of supercomputers is a The speed of supercompluers is a topic of considerable debate among manufacturers of parallel processing and other types of high-performance computers, Swan said: For example, it is difficult to compare parallel process-ing machines that break a problem into usly with more conventional super sters that attack a proj

cce at a time. The speed duel probably mes the speed oast protesty means I the to potential customers, according one analyst. The true measure of spet is how fast the supercomputer can rethe customer's own code, be said.

"Benchmarking is a black art, as

"Beachmarking is a black art, a that is true from PCs to superco puters," Swan said. The Lings benchmark test is unique. benchmark test is universally acc and considered a useful measure

percomputer speed, he said.

Although raw speed is not the sole reason customers choose one super-computer over another, Swan said,

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#### **EDITORIAL**

## The human side

t is very easy and common to think of information technology in impersonal and inanimate terms. We enjoy hearing and talking about the power of supercomputers with capabilities approaching one trillion calculations per second. We marvel at the exacting reports that are generated from electronic file cabinets at the click of a mouse. The computational potential being crammed onto fingernail-size chips of silicon is mind-numbing.

Very likely the same feeling of awe swept over the factory workers of a century ago when the Mechanical Age picked up a full head of steam. We wonder what feelings those workers had as the machines got so tremendously large. Today, we're awed by Information Age miracles that are microscopic.

So we often lose sight of the basic premise that these things great and tiny were intended by their inventors to improve the human condition, not to make us feel less significant.

Last week, Computerworld and the Smithsonian Institution honored more than a dozen indi-viduals and organizations whose use of information technology reaffirms the correct relationship between man and computer. It is a dog-wagging-the-tail relationship in which man is master of technology for the betterment of humankind, not subjugated and beholden to it.

Simply stated, the Computerworld Smithso-nian Awards and its search for new heroes moves the spotlight from the gee-whiz of modern ma-chines to the dignified expression of human thought aimed at making our planet a more humane, healthy and cooperative place to live. The actual technology is only a tool.

From out of a very large group of nominees in the education award category, the winner was a program at a small school in Washington, D.C., program at a sman scribon in washington, D.C., beaded by a young man who uses information technology to achieve major breakthroughs for children with learning disabilities. From the equally large environmental achieve-ment category, there emerged another small en-

trant: a company whose winning project is a deci-sion support system that maps out emergency management before any number of natural disasters strike, minimizing the loss of life and property once they do.

And from the media category, whose non eatured some of the biggest names and companies in media and entertainment, the winner was a nonprofit newspaper — the only four-language, computer-generated newspaper in the country — whose readership is the burgeoning Asian population in San Francisco.

These winners and the others from the third annual awards ceremony, listed on page 89 today, exemplify so much of what is right and what is possible with information technology. For each of us, they offer a chance to step back

from our blinking cursors and partitioned screens and contemplate some greater good to which we all might aspire in our work.



#### LETTERS TO THE EDITOR

#### Less regulation

I must take issue with the state-ments of Rep. Don Ritter (CW. May 6] concerning the need for an industrial policy to spur on the high-definition systems (HDS) effort. Once again, a congress-man assumes that Congress can micromanage the economy. It has been proven again and again that Congress is the problem, not the solution. Witness the S&L crisis and the auto industry decline and the multibillion-dol

He shows extreme arroga en he says, "... we we have a computer industry with-out DOD," So, all good comes from government, and no innovation has over occurred with onal mandate, right? There are some simple an-

ers to the problem of ma taining and growing America's manufacturing base. First, elimi-nate the capital gains tax. How can we expect anyone to invest in risky technologies, when, if successful, their rewards are

Second, in the particular case of HDS, let competition rip in the delivery of cable services by deregulating the communications stry, including letting phone nanies build the fiber infrastructure and deliver the ser-

> David D. Herchenroether Pittsburgh, Pa

#### **Employee rights**

he on way out" [CW, May 20], your readers should be awa that California is one of the few states that has a specific statute ent contracts and which noarchitecture for implementing applications, while the other is a

produ

This statute not withstan ass of database Mr. Schuse a California court, under the guise of equity, will enjoin a forcharacterized client/server DBMS as not supporting locamer employee from engaging in competition upon a finding of un-DBMS as not supporting loca-tion transparency. I suspect he meant "in today's products," but even this would have been incor-rect. SQLserver, Ingres, Oracle and RDB/VMS are all client/ fair trade practice or unwarrant

the country tend to give m protection to customer protection is not absolute. rver-architected supporting varying degrees of Even if protection is given to esent clients, it is not extend

location transparency, so it is strange that he chose to cast the last three as "true distributed ed to past or potential clients whom the employee had not so-licited. The protection given to last three as "true distributed DBMSe," It's also strange that On-line from Informix did not ap-pear at all and that Oracle apresent customers lasts only as ong as it takes for the former employer to re-establish the re-ationship with a new employee. The mention of noncompeti-

pearectwice.

More important, client/
server architecture has nothing,
at all to do with location transperency in the DBMS sense. The
idea of client/server is that the per or system ad tor has the option of placing ap plication-specific processing any platform that can comm cate with the server or servers.

Location transparency does not require that a full local DBMS and data dictionary reside on each node. Chent-only nodes have no need for a full local DBMS or data dictionary; they ed only connect to som

David McGovern ternative Technologies Boulder Creek, Calif.

#### DBMS confusion

Regarding George Schusse "Distributed DBMS decisions [CW, May 6], as a relational dat base consultant, I feel the artic

tion agreements and lawyers is a red herring. A lawyer's profes-

ion is the only one where post

employment restrictive cover nants, other than those concern

ing retirement benefits, are un-enforceable per so. This is based

on the premise that courts are only located in specified loca-tions and that clients have the right to retain the lawyer of their

I think it impr

Computerworld, P.O. Box 9171. 375 Cochituate Road, Framing-ham, Mass 01701. Fax number: (508) 875-8331; MCI Mail: COMPUTERWORLD. Plans

## Remember Gulliver's experience?

Size is becoming less of an advantage in the computer industry

BY WILLIAM SINES

Size used to be a for a computer tanne the vendor a particular set, you were the font from

which all innovations flowed and the automatic choice of customers seeking safety and cost effec-tiveness. But being big doesn't mean as much as it used to.

While the big computer com-nies continue to dominate the es, the medium-size firms are fast replacing them as the en-gines driving the high-tech erican economy

This is not a phenomenon confined to the computer indus-try. Between 1985 and 1990 exports of American manufac-tured goods rose by more than 80% in volume. Yet only two of the nation's biggest companies The rest of the growth — the fastest ever recorded in peacetime America — was contributtime America — was communi-ed by medium-size firms with sales (in 1990 dollars) of be-tween \$75 million and \$1 billion. Furthermore, at least 75% of America's employment growth since 1975 has taken place in

During the past decade or

companies have also become more competitive and large comlargest computer vendors was 85% in 1970, 60% in 1980, and by 1990, it had dropped to 36%. The secret to medium-size computer companies' success is not hard to understand. They

ogies are no longer discrete.
They overlap and crisscross
each other. No industry or com-pany can be fed out of one tech-nology stream. IBM, for exam-

technology and performance went along with being the big-gest in the industry or major market segment. From now on, it will increasingly mean being the "right" size. And, in most cases, this will mean being medi-um-size. Open systems has size. Open systems has nged the equation and can vide IS executives with highcost effective alternatives

ly to technology changes by of fering customers more powerfu and cost-effective products. Before the advent of open Big companies are good at many things, the most promi-

of a smaller vendor put the corof a smaller wendor put the cor-porate information manager on the "bleeding edge" of technol-ogy. It was a risky choice. The manager had to place bets not only on the success of the vendor but also on the success of the

Standards promise to make the technology choice both easi-er and safer. The information manager may now rely on the open systems promise, which is You get better price/perfor

You get better price/pertor-mance (due to innovation and competition) and easy portability (due to standards) if the vendor fails to keep its promise. The big proprietary vendors are not going to disappear. On the contrary, they will probably become larger as the worldwide remachibite economy becomes competitive economy becomes more well-established. The chal-lenge for the big boys will be to learn how to become more com-petitive despite being big.

unovation. It means buying into the open systems movement and forming strategic alliances and partnerships based on industry standards. Most of all, it means recognizing that size is no longer



outdated technology game. The rules that used to govern

· There was little overlap be-

with the possible exceptions of Intel and Microsoft, are no long-er in control of the rate of techgical change and are, there-less able to extract

neut of which is institutionaliza-tion. The dominant company sets the standards, makes the ket and keeps order. The ster the mark nge, however, the less th

no-nukes crowd, not stoms." Como

change, however, the less the companies are able to cope. The hyperflow of technolog especially in the semiconduct industry, has seriously disrupt the old market order. The sm

HE COMPUT-

lends itself very well to pithy bumper

sticker statements. from. A few are: "Partition data sets, not the Middle East," "Ex-ecute JCL, not animals," and "Back up tapes, not Third World dictatorships."

ING INDUSTRY

## Honk if you love computer programming

BY WILLIAM LEVINE

e Super Bowl. It has produced pabytes of junk mail; starred in view such as 2001 and Wormwar and allowed millions of indem users to get paid for ofing off at home. Still, despite all this exposure, the computer is still not really an institution in this country. Why? Because it has never made it onto bumper

stickers.

Look what bumper stickers
did for babbes in terms of visibility.

At the height of the "babyo on board" campaign, these three
little words elevated babies from
the depths of the Zero Population Growth era to the demomake "witned and lacrative hic, cultural and lu

What was done for the baby can be done for the computer. We just need to bump up the computer's Q-factor by placing a requisite number of succinctly obnoxious slogues on the backs

stickery know that there are several genres of bumper stick-ers. We need to pervade these genres with bytes of wisdom

threatens of immortality one common type deals with esumptuous assertions of im-actality. A typical example is oug MacArthur's enduring ad-risement for himself: "Old

iks specific occupational and ocational proficiencies to abili-

rath do it oy oranja, am kiructured programmers do it an the top down." So far, we've discussed his nrous bumper stickers, hu me motorists tack their politi-i, religious and ecological pas-nos on the back of the car in the rm of the "Tm OK, you've not"

COMPUTERWORLD

slap on the slogan, "Spaghetti code — go to hell," while tradi-tionalists can counter with "Co-bol II — The Next Degenera-tion." Not-so-user-friendly IS nukes crowd, "Split wood t atoms." Computing is defi-tely a serious business, so are are a lot of verb and duel-

numper stocker possissatives that are hard to categorise, bu should still qualify as real bamp or thumpers. Computing sto dents who went down man wrong logic paths in their intro ductory courses might want to

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## **SYSTEMS & SOFTWARE**

## OMG finds brokers

Object Management Croup (OAG) has an accounced two finals in the control of the c

the private interaction of the private policies in an object-oriented environment. OMG, based in Pramingham, Mana, in an international group of systems wenders, activate developers and users deficiented to promoting object management in noft-ware development.

large regional U.S. commercial bushing institutes, Stockholmer Systems, Rec. (SSD), see Systems, Rec. (SSD), see Systems, Rec. (SSD), see Systems, Rec. sonomore of fonds bransfer software systems, Called Financial Exchange, the activates runs on the Stratus family of fault-telerant XA 2000 Continuous Processing

Centinosa Processing computers. Sold and espparted by SSI, Pinancial Exchange is available now and trees under the Stratus VCS quenting system. It is currently running at the lapartel Bank, a \$3 billion consumcial bank in Los Angeles.

## Users wait for 3600 reality

Despite NCR's boasts, massively parallel processor remains to be proven

#### BY MICHAEL FITZGERALD

"Promises made, promises de-

That's how NCR Corp. introhered its System 3600, a maniciety perallel processor, four interest than the fastest conrentineal missingers. In reality, the promise has yet to be kept; forth hardware and software extal targety in the minds of MCR employees in its West Coast labpratories, who plan for a December release. All NCR did in front of some 120 corporate users at New York's Public Library Just

set \$850,000.

Some users said they eagerly is it in the commendate the 3600, a main-me-class machine based on a go alable, massively parallel commendate.

puting architecture with up to 286 microprocessors. "I'm bullish on the whole con

"I'm bulleth on the whole concept of measively parallel computing," said David Karlson, vice president of MS at Troy, Michbased K Mart Corp., which has invested heavily in Teradata Corp., a parallel processing database computers, the basis for a significant piece of MCR's System 3600. But Karlson tempered his enthusiasm, saying, "The engineering problems MCR's fecal-manuser."

NCR plans to combine Terators of abstance engine, based on to 32 application module prossors, each with a 33 MHz in 40 cp. 1486 chip, with up to 32 oplication processors, each thit two to eight 50 MHz 1486 hips for up to 288 processors. It a tall order for any company, foot think NCR can meet its

got the technical talent," sai

## NCR

 Introduced: May 1991
 Deliverys Due in fourt quarter 1991.
 Architectures Unix-be

1486 chips.

Price ranges \$855,000 to \$8 million.

Turget markett Large transaction processing

transaction processing operations. Challenges: To overcom

3,140

Omni Sertin, besel of Itom International Co. in Los Altos, Cali But Serlin says NCR has a spott track record with its technological cal development: success with the small computer systems is terface, and a bust with its 960 mainframe line. He said he wan to see the product before he pr dicts success, at least in NCR ambitious development sche

d by the hardware could stager NCR, the software is the rue concern for teers such as farison. NCR has to develop a sultiprocessing version of Unix systems V Version 4, and it is unlear that it will succeed in doing

"It's one thing to talk about a multiprocessor Unix for several processors, but when you talk about hundreds or thousands of processors, the environment gets a little more tricky," Karlcon said.

NCR aiso must adapt Terradata's proprietary language to run in Unix, which could present some tricks, and the company Continued on page 35

## IBM puts off object-oriented support

BY ROSEMARY HAMILTON

IBM will postpone its acheduled announcement of support for object-oriented technology in AD/ Cycle until later this year, a company executive said recently. IBM had planned to announce

by the end of this month support for the Digitalk Smalltalk language in its strategic software development environment. When it does make the an

also provide a more substantial statement of direction for AD/ Cycle and object-oriented languages as well as methodologies. "This is not really a delay," er of Common User Access, who also has responsibility for objectoriented technology in AD/Cycle, "We want to do it in concert with other announcements."

In November 1990, Reew outlined IBM's object-oriente projects, which focus on sever areas, including software deve opment, databases and IBM would be given to be a several development. At thine, Reeven and IBM would be give work in 1991 to bring object of the object of the Abd. Common the object of the Abd. Common to ADD, Cycle and wow announce by June 1991 support of the Abd. Common the object of t

or at least one object-oriented anguage in AD/Cycle. Recently, IBM determined it would make more sense to adirous the larger issue of objectCycle is Room AD/Cycle instead of announce conly language support, nounce

Whole focus
The AD/Cycle announcemen
will focus more on how object
oriented technology will affect
the whole development life cycle, "rather than on an individual

cie, "rather than on an individual product," Recess said.

Paul Hessinger, chief technology officer at the Compute Task Group, Inc., said he expects the announcement to know the said that the said t

pects the announcement to he "more of a description of [IBM's intent with the object-oriented area, as opposed to any sort of breakthrough."

IBM still plant to include

Smalltalk in AD/ Cycle and will also recognize C++ as an AD/ Cycle language, Reeves said.

ponement following an an nouncement earlier this mout that IBM had joined Object Man agement Group (OMG), an in dustry association established to promote standards for object oriented technology.

pleased that IBM had joined OMG. He said the membership will give IBM the chance to "in finance and he influenced" by the future of object-oriented technology.

sheed with plans to bring object oriented technology to existia IBM databases, although I could not provide a time fram Reeves said.

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## DEC attempts new open systems feats

BY MARYFRAN JOHNSON

Like a nervous audience watch-ing a high-wire artist perform above a net full of holes, Digital Conjument Corp. customers are awaiting the next moves in DEC's open systems campaign with anxiety and anticipation. The following are some of the

gaps that users and analysts have spotted in DEC's strategy: The perception that the pro-prietary VAX/VMS line is changing too slowly to catch up with a market burtling toward reduced instruction set comput-

"The big question for DEC is migration to the RISC-based ha VAX," said William Bluestein, an analyst at Forrester Rech, Inc. in Cambridge, Mass. wiett-Packard [Co.] did the same kind of transition, but it took them forever, and DEC ate their lunch in the meantime.
This could be payback time."
The deanting, ground-breaking task of turning a minicomputer vendor into a software/systems/network integrator.

The knowledge that the firm's shaky profitability still leans heavily on high-margin VAXs.

'Open Advantage' very clearly,'
Peter Smith, vice president of
DEC marketing, admitted recently, "Customers how that

Some users are also running out of patience with the struggle over standards. "I get a little up-set with these vendor-oriented

go," Brazas and. "The ideal noild be plug-and-play net-tries with any type of hard-are, regardless of the vendor." Analysts say DBC's true mo-nation in opening VMS with in-stry-standard Posits-compliant terfaces in to preserve VMS as alternative for open systems

uyers.
"DEC's heart is in the right
lace," said Peter Schay, an anarat at Gartner Group, Inc. in
tamined, Conn. "We tell our clitimis looking at what open systems strategy they should have
hat DEC ought to be on their

In addition to products ru ning on MS-DOS and App

## All eyes on DEC

## Storage keeps up with Dialog growth

ONSITE BY JEAN S. BOZMAN

PALO ALTO, Calif. - If disk irive technology were not get-ing denser all the time, on-line intubase provider Dialog Inforation Services, Inc. would have atgrown its 12,000-sq-ft com-

puter room a long time ago.

Rortunately for the 20-year-old firm, the dramatic increase in the amount of data that can be

the same to distant that case be-placed on a single disk drive has beloed in its move toward re-placing many of its indexed shattests with full-text versions of newspapers articles, scientific "We now have 1.3T bytes of information on-line," said Rob-ert Feinstein, manager of Dia-log's data centre here, "mai fit in in the same space as the 270G bytes we had on our BM 330 or Tables to adding 200 to 40G bytes of storage per month, with

bytes of storage per month, with no end in night, Feinstein mid. Historically, Dialog has doubled Historically, Dialog has doubled its disk drive capacity every three years. The data center now has four strings of Historical Data Systems Cerp. (HDS) 7390 disk drives, totaling 2406 bytes of capacity, in addition, Dialog has more than 1T byte of capacity on 34 strings of HDS 7380 Model K and Model E drives.

log's chief executive officer and founder. "People want access to the on-line files right away rath-er than accessing an abstract first and then sending a request for an article to a fulfillment

corp. 4705 front-end con-er routes inbound modern ests from X.25 packet-thed networks, including net and Telemet, to the HDS



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Apple NUX\* lets Macintush run UNIX\* applications plus thousands of Mac\* programs. At the same time you can run X-Window and MS-DOS applications, and cut, copy, and paste between any of them. No other desktop computer can do this.

# to anything.



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information isn't much good to people who can't get to it. Macinitods sorts out the complexities of multiple computer systems and presents vast information to people at the deshiop in a single, consistent way.

While diversity may make life rich and fascinating, it makes life as an IS manager something short of serene.

What is politely referred to as the "multi-vendor environment" is an amalgam of disparate hardware, incompatible operating systems, dissimilar databases and multiple networks. Nevertheless, IS people are expected to make these all

work together in perfect harmony.

But lately, a lot of people are finding their solution at a very unexpected source: the Apple Macintosh computer.

They're finding that Macintosh comes out of the box with sophisticated networking capabilities designed right in.

That Macintosh is open to virtually any host, any file server or any database, through any network.

That Macintosh makes the desktop the place where diverse systems come together.

That with Macintosh you can build systems that let even the most nontechnical user access information right from the desktop no matter where that information resides.

And because Macintosh works with all your networks, databases and hosts in one consistent and graphic way, it delivers major savings in implementation and training.

In short, Macintosh reduces the complexity of your systems environment by giving people a single, simple view of the information and services that can help them do their jobs and a few sixes beauting bow Maximus that the complexition.

serve your organization.

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It's yours just for calling 1-800-685-9550, ext.550. And it demonstrates the power Macintosh gives you to make information systems more valuable to the people who use them. The power to be your best.

## Encore releases duo of low- and high-end products

BY SALLY CUSACK

FT. LAUDERNALE, Fla. — Playing to both ends of its customer base. Encore Computer Corp., his especialed its line of expected Corp., his especialed its line of systems with two product differings.

At the low end, the wender rolled out the ESS Systems, a reduced instruction with all of persistent products of both native RISC and Encore! a customic Concept/23 mers towards RISC including mers towards RISC including concept Concept/23 mers towards RISC including Concept/24 mers and RISC

ny Systems.

Targeting high-end on-line transaction processor (OLTP) applications, the venter surveiled the Encore 93 series, which can be configured with four to 32 Motorials 88000 RISC processors.

The system reactives a mutual resolu-real-time Unix operating system and de-livers more than 5000 Digital Equipment Corp. VAX millions of instructions per second, according to the vendor.

iome enthusiasm for the clustering ca-lities of the new systems was ex-sed by William W. Sines, director range systems and server research at mology Investment Strategies Corp., on for the clustering caresearch and consulting firm in Fra-ingham, Mass. However, Sines said he so had concerns as to the wendor's nance of success in the OLTP market.

They just don't have the sales and

"They just don't have the sales and marketing in place to compete directly with companies like Harris Corp." Since said. "Their strength will continue to be in a real-time either market." Pricing on the RSX ranges from \$148,400 to \$249,900, depending on-pitone selected. Upgrade to existing Encome systems began at \$99,500 and are expected to begin shipping this month. Pricing for the Encome 50 series begins.

LOS GATOS, Calif. — A simulated Unix operating system from Lynx Real-Time Systems, lac. is being readed for Hewlett-Packard Co.'s and San Microsystems, lac.'s reduced instruction set computing (RISC) platforms.

The operating system will run on Sun's

poince (RSCS) patchesses, where the second services of the compatible with all Scalable Processor Architecture agglectations for Sair the general general work and scalable for second general processor for Architecture agglectations for Sair the general generally workshop the expension of the general g

When you can put that kind of con

"When you can put that kind of com-puting power coming out of a multipro-cessor-based system, it's a tremendous opportunity," said David Evans, vice president of IS at J. C. Penney Co. in Dal-las. "It's going to change the way we do things in ways we don't know yet," be

Unonswered questions However, the question marks remain, a the ongoing merger with AT&T's Co puter Systems Division rais-ticularly

the complex merger with AT&T's Con-puter Systems Division raises merc par-ticularly since the division has had some success selling its high-end parallel pro-cessor, the Systems 7000, which AT&T results from Pyramid Technology, Orn-James E. Cark, vice presistent of high-performance and flash tolerant systems at the Computer Systems Division, and the 7000 will appear and the promise, but people want to see the reality.

Real-time Unix OS for Sun. HP

ing a missile and it's off course, you have to correct it within milliseconds. In a normal Unic operating system, it would have to finish another system call before cor-necting the course, which could be too late," Singh said. Lynx is shill to get around the limita-tions of Unix by working the Unix hermal shipselder, according to Singh. The com-pany instead simulated unix through re-west consideration.

pary instead simulates Unit through re-verse engineering. Real-time operating systems suffer from lack of applications, he added. The control of the control of the control lack of the control of the control of the IDM (380 care to the control IDM (380 care to the control IDM (380 care to the control operation), lac's a Solidon chip through Data control Corp. Singli said he expect the location of the control operation of the location of the control operation of the location of the control operation of the control corp. Singli said he expect the control corp. Singli said he expect the control corp. Singli said he expect the

Sun and Hr House to seep spin reaction standardisation.

"The only real standard is Posiz.4, and that's still in draft form," Singh said. Lyn-hau sdopted Posiz.4 and the establishe Posiz.1 interfaces.

#### Maximum server for RS/6000s

Maximum Strategy, Inc. in San Jos Calif., last week introduced a high-performance storage system for IBM RISC Sytem/6000 workstations that provides to centific and technical users wis supercomputing capabilities, according

emperconjusting capaseurus, Recumus, or The Strategy 185/000 RAID (reduction traveys of incepensive dains) Storage Server will be macheted by Machete Strategy and IBM and will allow the capacity and IBM and will allow the catacas usually reserved for supercomputers and minimappercomputers. The server, resulted in mix-fally at The server, resulted in mix-fally at the computer of the catacas usually as 40 54-th, hard daid chross and delivers as 16M bytelene and the computer of the computer of the computer of the physics of the the computer of the computer of the physics of the the computer of the computer of the computer of the physics of the the computer of the c

#### 3600

CONTINUED FROM PAGE 27

t release its Top End transaction pro-or, due for general availability in Sep-

canned z,000 million instructions per second OMPS), at one-tenth the cost per MIPS of an IBM mainframe (\$5,000 per MIPS, an opposed to \$50,000 or more). NCR said 1992 systems will offer 10,000 MIPS and will be capable of pro-

censing 1,200 transactions per second. The benchmarks for the nonexistent ma-chine are taken from the ratings of curme are useen from the ratings of cur-ity of the control of the control of the Serlin pointed out that benchmarks do to reflect peak performance possibi-es under ideal circumstances, and actual

nce almost never equals bench ed that NCR could create a ma

he saded that NUK count create a ma-ine significantly faster than a typical uninframe. The problem, he said, would e its level of efficiency.

These numbers create visions of com-

tely new and more powerful applica-

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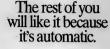
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## X Window System gets a boost from vendor rollout

#### BY JOANIE M. WEXLER

will particularly the control of the

software slated to be a feature in the next version of the X Consor-tium's standard version of the X protocol. The foot software aims to standardise font formats in different vendors' equipment so

ronment.

• Visionware Ltd.'s Xvision 4.0 is said to integrate a copy protection scheme to guard against

# Unix software products refined

### BY JOHANNA AMBROSIO

Two archrivals in the Unix software-development market have introduced new components of

introduced new components of their respective systems while taking very different tacks. Interactive Development En-vironments, Inc. (IDE) in San Francisco added reverse engi-neering and code generation to its C Development Environment and simplified querying the re-

and simplified querying the re-pository and navigating through the various modules. Cadre Technologies, Inc. in Providence, R.I., enhanced its Teamwork software-develop-ment system with a tool that pro-

Tests added
"Testing has been ignored,"
said Ted Gary, director of marlacting, "Although the debug and
setting phase accounts for more
than 50% of the entire development time, our studies show that
only 40% of shops have standurds for testing software, and
only half of them really enforce

Cadre's Teamwork/Testcase

explains why it chooses a certain type of test set. Testcase will be available in August on the Sun Microsys-tems, Inc. Sparcetation and in the fourth quarter on other workstations, including IBM'a RISC System/6000 and the Sun 3. Prices Beepin at \$9,995, ac-cording to Cadre.

Ensier code development For its part, IDE's C Develop ment Environment, initially in-troduced in September 1990, has been enhanced with a re-

by don't like to be total now to do things."

With the reverse-engineering and code design modules, existing source code can be eigeneered into designs, and new source code can be generated from these designs, and new source promised throughout the development, promised throughout the development process — if development change the design, the code will reflict those changes, and vice

The Code Generator and the reverse-regimeering module, called the Design Generator, will be available in August on the Sun Spartstation; versions for other workstations, including those from BM and Hewlett-Packard Co., will be available by the end of the year. The Design Generator in priced at 84,000, and the Code Generator is priced at 23,000.

\$3,000

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#### NEW PRODUCTS SOFTWARE

MB Solutions, Inc. has created

MB Solutions, Inc. has created, [LL/Convert, solvare that aids pix control language (CL) consolidations and conversions. [LL/Convert includes the companies, and the companies of LL/Cross-Reference and PDS/Manager products, it allows users to identify, i-document and systematically later [LL-related data elements such as job, file, program and procedure, the company said.

An average system configurations.

company said.
An average system or tion costs \$11,000.
MB Solutions
56 Steele St.
Denver, Colo. 80206 (303) 321-2205

SYSB-II, a product of H&W Computer Systems, Inc., allows CICS VSAM files to be simulta-

CICS VSAM files to be simulta-neously updated by on-line appli-cations and batch programs. The product maps batch up-dates transparently to CICS without source code alterations, according to the company. Batch changes can thus be journaled along with on-line updates. SYSB-II is priced between \$10,000 and \$40,000, depend-tion on processor groups.

H&W Computer Sy 3166 Elder St. Boise, Idaho 8371 Boine, Idaho 837 (208) 385-0336

Database

Cognos, Inc. has released its Powerhouse 4GL and Power-house Starbase relational data-base management system for Digital Equipment Corp.'s Ultrix

The products retain the look and feel of the VMS environ-

and teel of the VMS environ-ment versions, according to the company. Software generated by Powerhouse can be ported between VMS and Ultrix envi-ronments with only minor revi-

The Ultrix version of each product costs \$5,900 to \$200,000, depending on hard-ware platform.

Cognos 67 S. Bedford St. Burlington, Mass. 01803 (617) 229-6600

Computer-aided software engineering

Iconix Software Engineering,

Inc. has announced a version of its Freeflow computer-aided software engineering (CASE) tool for Sun Microsystems, Inc.

worlestations.

Freeflow is a structured analysis tool incorporating a data dictionary and repository. The product runs under the X Window/Motal interface, according

### HARDWARE

Bit 3 Computer Corp. has an-nounced the Model 465 Sbus to Q22-bus Adaptor, an adaptor that makes it possible for Scal-able Processor Architecture workstations to use Q22 bus-

based boards.

The Model 465 Adaptor com-prises two connected cards. It al-lows Q22 bus I/O to be directly essed as Sbus I/O and up to

4M bytes of Q22 bus memory address space to appear as Shus

memory.

Cables connecting the two cards are available up to 25 ft. in

8120 Penn Ave. So Minneapolis, Minn (612) 881-6955 n. 55431

### Data storage

Qstar Technologies, Inc. has de-veloped a line of rewritable opti-cal storage subsystems for the IBM RISC System/6000 workstation platform.

The R650M subsystem consists of one 650M-byte drive and file system software. It is priced at \$5,495.

a range of storage capacity from 10G bytes (\$24,995) to 93G bytes (\$88,995). Quar Technologies

ster, a prod

unce storage subsystes Up to six central or

share storage systems via Flashcluster's 10M byte/

to a length of 80 ft. Host lapters for BI-bus, Q-bus, Uni-er and 3100 SCSI-bus CPUs

bus and 3100 SCSI-bus CPUsare available.

Pricing starts at \$7,995 with a 780M-byte disk drive included. Winchester Systems 400 W. Cummings Park Woburn, Mass. 01801 (617) 933-8500



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#### II N I X DATABASE

# Which UNIX® RDRMS did Hewlett-Packard', IBM', Unisys'. Data General', AT&T', Sun', and Sequent' choose to demonstrate the power of their latest UNIX Systems?

# Informix.



IDC Study on UNIX OLTP UNIX On-Line Transaction Processing of Multi-User UNIX Sans (January 1991) states that some 47.4% of sites running commercial applications on multi-user UNIX systems are running OLTP. The study reports that Informix is in use at more sites than any other DBMS for UNIX OLTP applications

The Transaction Proces

Performance Council (TPC) was

founded in 1988 to define

and to provide performance data to

the industry. Today, 40 hardware

and software vendors, including

AT&T, Bull, Sybose, Data

General, DEC, ASK/Ingres.

uiesa, IBM, Informix, Hewlert

Packard, NCR, Olivetts, Oracle, Pyrismad, Sequent, Siemens, Sun.

and Universare members.

© Canonada 1991, Informa Sofrenze, Inc. Informia o a reg

saction processing benchmark

Within the past five months, every one of these companies selected and used the INFORMIX-OnLine database server to demonstrate to their customers the power of their latest UNIX systems. No other UNIX database product has been this extensively benchmarked-because nothing shows performance

#### New TPC Benchmarks Used

In each case, the Transaction Processing Performance Council's rigorous TPC A and TPC B benchmarks-the new standard for comparing system and databa performance-were used to highlight OLTP performance and database throughput.

#### The Number 1 Choice for UNIX OLTP

Informix is the number one UNIX OLTP choice. A January 1991 International Data Composition (IDC) study shows that when it comes to UNIX OLTP applications, Informix products are installed at more than twice as many multi-user UNIX sites as our closest competitor. It's independent confirmation that thousands of companies worldwide rely on Informix-based OLTP solutions every day

#### A Decade of Innovation

Informia has been a UNIX RDBMS technology leader for over 10 years. Continuous innovation has resulted in advanced application development languages, distributed client/server computing, gateways to other computing environments, and multimedia flexibility you can take advantage of today

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what it delivers. Developed entirely on UNIX, the OnLine server turns in pennum performance on every popular UNIX architecture—including sym multiprocessors, RISC, and CISC



TP1 vs. TPC Benchr The TPI benchmark is no longer the

accepted benchmark for measur database performance. The new-TPC tests establish more complete, thorough specifications than TP1. leading to more objective, verifiable results for comparing performance between hardware systems and softw products. TPC Benchmark M measures OLTP processing similar to a batch test-focuses on

database throughout







# PCs & WORKSTATIONS

### COMMENTARY

Patricia Keefe

### Vendor vignettes



sate for US/2 2.0, with "early final" code going out to users in August. New US/2 development partner Micrografx reports that its work for IBM is coming along fine. Meanwhile, Micro-soft is telling its accounts to ex-sect the 32-bit Windows, also per's kit is supposed to she end of this year, but as

Once burned, twice sky, Every wook, it seems, reveals yet another crack in the tottering BM/Microsort partnership, One devieus outcome of this is BM's refusal to commit to Microsoft's portable OS/2 development project. New Technology OS/2 BM's administor that it is looking at alternatives could once again leave developers in a quantary, readering which way

to go.

Now you might think that all of those developers who chose OS/2 over Windows might just be more inclined to pick New

CUPERTINO, Calif. - Es

tion and maintenance questions much a major upgrate typically edgenders, but Apple promises that help is on the way. This week, Apple will deliver two law System 7 support puctages that should go a long way in taking the guess-work out of maneuvering through the new operating system. The arrival of the subscription ser-

any support, but it's good to know that they're not letting us go out on a limb if we do run into trouble," said Barry Eisenberg,

d for institut

Support changes accompany System 7

# CASE users are stuck on DOS, study reveals

BY RICHARD PASTORE

Users of computer-sided soft-ware engineering (CASE) tools are principally relying on the Personal Computer-DOS oper-ating environment and do not seem in any burry to change, se-cording to a study of CASE ser-released by Datapro Information Services Group last month. Of the 102 users surveyed, 67% are currently running

nest. That is a margin of 2 to er the next most prevalent ating environment, OS/2.

er operating environments rep-resented in the survey include Unix (22%), Digital Equipment Corp.'s VMS (19%), Apple Corp-puter, Inc.'s Macintosh OS (12%), Mainframe DOS (9%) and others (18%).



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# COMPUTERWORLD

The Newsweekly of Information Systems Management

# Foes rise to meet Visual Basic

BY PATRICIA KEEFE

Microsoft Corp.'s Visual Basic for Windows 3.0 had barely set foot under the spotlight before two competitors rushed the

stage... Within Technologies, Inc., a small development house with a core of former Microsoft employees, is already collecting accordades from some industry observers who say its Realizer applications generator will upstage Visual Basic, which was ancoursed last morth.

overing by the footlights is Software Technologies, USA. The Salem, Masa.-GPA SOLVEAU Inc., USA. The Salem, Mass.-based developer has ported its DOS-based GFA-Basic applica-tions generator to Windows 3.0.

# Imaging saves money in huge bankruptcy case

ONSITE BY CHRISTOPHER LINDQUIST

MIAMI — When General Development Corp., based here, filed for Chapter II protection last April, it was called a "megs case" in bankrupty lings. But in terms of processing the hundreds of thousands of document involved in the claims process, it was going to be a mega head-the Them the firm looked at im-the firm looked at im-the firm looked at im-

ruptcy code, a court can require the debtor in large cases to psy for some administrative services normally performed by the court itself. So when the bankruptcy court in the Southern District of Florida in Miami required Gen-Florida in Misim requires Cen-eral Development to provide a means of handling the thousands of claims from its creditors, the \$500 million construction firm considered microfiche, the tradi-



be added that care had to be taken to ensure that the claims wen

Saves.

WEEK

COMPUTERWORLD



### Oracle unveils interface for **DDE Windows**

BY JEAN S. BOZMAN

REDWOOD CITY, Calf. — Oracle Corp. recently amounced the first of a series of products the will use Microsoft Corp. 10 reported the first of a series of products the will use Microsoft Corp. 10 report of the recent of the recent of the recent of the recent first of the recent of th

The \$299 product is built on urace: a we DDE Manager Version 1.0, said Jim 389, a senior director of marketing at racle's Deaktop Division. The DDE Manager contains a Query sider that allows users to create SQL eries without detailed knowledge of the

Language. A future version of the Oracle DDE nager will be designed for use by soft-ed evelopers who know SQL con-dist, Reilly said. He gave no date for availability of the developers' version

### NEC notebook PC weighs 71/2 pounds

BY MICHAEL FITZGERALD

BOXBORO, Mass. — NEC Technologies, inc. released the Ultralite SX/20, a 7½-pound, 20-MHz Intel Corp. 80386SX-

nd notebook computer. Inalysts said NEC, long listed at Top 5 laptop computer makers, and recently as a result of signif

The Ultrails SU/O nchies the fa-ting, a 94%. Video Graphic Array-mentile scene, 23 bytes. Video Graphic Array-mentile scene, 23 bytes of random-case memory, expandable to 100d for 100 bytes. Video Constitution of 100d for 1 also comes handle with Micro-tic R also comes handle with Micro-tic R also comes handle with Micro-tic Copy. Swindows 3.0. The product in tell on the product in the con-tent of the common service of the con-tent of the common service. When the com-ress, NEC tends to discount beavily, plose and the adult that he expects or prices to be in the "more reason-"25.300 reage."

### PC & WORKSTATION SHORTS Open systems CD-ROMs

# Unce you've extend

WITH OUR NEW SX MODELS, IBM MAXIMIZES THE POWER OF THE INTEL 486 CHIP AGAIN. When the IBM PS/2° Models 90 and 95 XP When the IBM FNZ\* Models 90 and 50 XI'
486" were introduced, they burst from the
held their lead brilliantly. With the introduction
of the new 20 MHz SX\* models, IBM offers lower-cost entries that deliver high-powered computing. So no matter how diverse your needs, we have a champion

ready for you. All the Models 90 and 95 are designed to use the most advanced components to achieve optimum balmost advanced components to achieve optimum bal-anced performance in powes, speed, storage, memory and W.A. graphic resolution. Like their forerunners, the new 90 and 95 NP St. models possess a 64-bit processor-in-RAM path and advanced Micro Channel" 32-bit architecture for light ming-fast data flow and improved data integrity. The 4MB RAM standard on the SX models is 600 undeled to BMB on the 2S and

### Keefe

CONTINUED FROM PAGE 37

Technology over anything IBM might come up with on its own. Not so Lotus. To be sure, Frank King, senior vice president of the Lotus Software Busine forup, doesn't want a repeat of the firm's Windows experience, where it het on the wrong horse (OS/2) in the short term, loting precious time in the Window

The pragmatic King says that if IBM and Microsoft go their own ways on portable OS/2, you can expect Lotus to support both efforts.

Tell us how you really feel. Apple

Chairman John Sculley was quite effusive in his praise for Lotta recently surveiled 1-2-3 feet the Machinesh, Not only die 1-2-3 feet the Machinesh, Not only die het the Machinesh, Hot only die het the Machinesh, he also prediction that the latest release of 2-3 would be "well-surveiled" at Apple.

Well of the Machinesh of the

ICROSOFT SAYS the developer's kit is supposed to ship by

the end of this year, but as one user commented. "Those guys are always six months off."

He also said Apple now has "the chance to be a real player in the multiv dor workplace with the most important power application [1-2-3] in the world." Bet they're still smarting in Bellevue.

Second verse (almost) the same as

the first. Will Pastie, editor of the "R tie Report," gave 1-2-3 for Windows th thambs-up. His preliminary analysis shows 1-2-3 for Windows is Thetter the Excel. "Why? Because little, subtle this mean a lot. Pastie suggested that users "will come to like 1-2-3/W better" tha

"will come to like 1-2-3/W better" than Exoté for a variety of reasons, including the way. Lotus hundles posting graphics conto the same page and the way it han-dless mulchocument upwendhoets. When the hand of though the come and try to do a review," he said, explaining that they are the sort of differences you'd socioe only after a longer evaluation. "If some control of the same and the same sense. Lotus has a winner on their hands, and Exot will be up against the wall de-fending (inself), he said.

Are you taking notice? Scilley also dropped owns hasts about Apple 5 for the form of the control of the control

notebook. Consider that 1-2-3 is already available on the Poquet and HP paintops. We not the Macintonh' After all, according to Scalley, 1-2-3 for the Macintonh is a product whose time has come.

de in Computerworld's senior editor. PCs and



- MAINFRAME provide No rekeying of data Cost-effective data ex



# gota champion,



and 33 MER moutes also include a main co-process for improved performance in numeric-intensive applications like financial modeling and CAD/CAM. But perhaps the most compelling feature of today's champions is their ability to adapt to the need of tomorrow. With Expandable Processor (XP) tech-

of simorrow. With Expandable Procession (XI) rechnology, all modes can easily be supposed to speech prology. If modes can easily be supposed to speech processor and such as the surface of the surface o

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How're you going to do it? PS/2 it!



# Word: Tight Windows link, complex tools

#### proposit Corn's Word for Windows Version 1 1

Reviews	Performance	Ease of use	Edining	Primer support	Network support	Decumen- tetion	Service and support	Volve	Score
	The part of	-		-	Yegued	Vergent	* Normal	-	601
PC Week t/31/90	Fastest GUT word processor	Good	Good	NC .	Good	Good	NC	Ideal for more demanding upons	Analyst's choice
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Year Creaty, Telectrusics acing Systems, Inc.	-					1	-	-	Excellent
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Amplysts									
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leut Higgs, National Subvere Setting Laboratories, Inc.		=	=	L		L	=	-	Needs power platform
THE PARTY NAMED IN		9			3			6	Departs of

Vendor financial ratings

Analysts	Long-term shouldry	Short-term performance	Outlook
Polar Degan, Reference Deplace and Co.	10 Ben	0.00	Very great
W. Christopher Mortenson, Airz, Brown & Sons, Inc.		-	Very good

d replace.

Mail merge and outliner facilities

also strong, but the spell checker



bility of getting the document right the first time. Without it, you can ste a lot of time cutting and pasting and doing repeated corrections."

### Microsoft responds

#### NEXT WEEK

#### NEW PRODUCTS

Advanced Logic Research, Inc. (ALR) has amounced a new family of file servers with an upgrade path to Intel Corp. 1486-based dual processing.

The Powerpov VM Servis includes SM bytes of standard system memory and a cacching enhanced small device intellection and a caching the controller to achieve high UO rates, ALR reported. Models are available with Intel 8/0306 and 1486 processible with Intel 8/0306 and 1486 processing the service of th

ever with intel 20386 and 1486 processors of varying clock speeds.
With a 650M-byte hard drive, a 33-MHz system costs \$10,995. A 25-MHz model costs \$9,995.
ALR

9401 Jeronimo Irvine, Calif. 92718 (714) 581-6770

#### Macintosh products

Go Technology, Inc. has released two new versions of Hot Keys, its function key macro system for the Apple Computer, Inc. Macintosh.

The new versions support Aldus rp.'s Pagemaker 4.0 and Silicon Beach ftware, Inc.'s Personal Press. Hot Keys includes more than 140 pre-

ned macros that perform com keystroke routines in the supported appli-cation; it also allows users to create cus-tom macros. A keyboard overlay is includwith the program. Hot Keys costs \$59.

Go Technology 2nd Floor 918 Northwood Blvd. Incline Village, Nev. 89450 (702) 831-3100

#### Software utilities

Norther Orlinity

No-Mega Technologies, Inc. has upgraded CV/II, its adility for the Microsol Corp.

Windows Software Development Kit.
(SING Codewise debugger.

The Company of the Compan

gog, Inc. has created Squash, a file com-ression and floppy disk bockup software likely for Next, Inc. workstations. Squash can be operated via hot key much be the Workspace Manager inter-ce. Compression is automatically per-med at the time of backup. A docum-rension program in provided for start-bulson with compressed files. Jesus attribution with compressed files. Jesus and \$899.50 for a 10-user locante.

Agog 13780 N. River Highway Grand Ledge, Mich. 48837 (517) 627-2186

### Development tools

XDB Systems, Inc. has begun a the XDB-Windows Software Des Kit (SDK) for SQL implementatio Microsoft Corp.'s Windows 3.0.

The hit consists of the XDB SQL En-né Version 2.4; a redirector that man-ses packetization for communications tween personal computers running indows and a network server; a C lan-age application programming inter-ce; and a C precompiler for embedded

L functions. The SDK is priced at \$750. XDB Systems 14700 Sweitzer Las Laurel, Md. 20707 (301) 317-6800

Aion Corp. has announced availability for Checklist Builder, a personal computer-based tool for generating checklists

rough custom applications.
The product features an on-line Helpicility, a text, editor, reporting facilities and automatid logic checks for international statements of the control of the consistency is generated lists. It is target-ed at applications in expense authoriza-tions, ordering procedures and project ad-ministration. It is intended for users with area-specific knowledge but limited pro-gramming knowledge, according to the

company.
Checkist Builder costs \$995, with an attroductory price of \$695 offered until une 30. Free telephone support for 90 says is included.

101 University Ave. Pale Alto, Calif. 94301 (415) 328-9595

Database management systems

Ace Software Corp. has unveiled Ace (\$295), a database for the Micro Corp. Windows 3.0 environment.

Corp. Windows 3.0 environment.
Users can work on as many as 10 data-bases simultaneously in Acefile. The pro-gram offers what you-see is what you-get page preview and 15 types of report charts with two- and three-dimensional graphics. It includes extra features such as a mini word processor for mail merges and so satellited.

as a mm word processor and an autodialer.
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# NETWORKING

# Copper matures as FDDI alternative

### Figuring cost

# Do laws protect wireless nets?

BY MITCH BETTS

WASHINGTON, D.C. — Toe 1986 federal law that enakes it il-legal to intercept electrunic mes-sages has short-circuited. It ap-parently fails to cover wireless data communications, such as the traffic over wireless local uren networks, according to a re-port prepared for a U.S. Senate subcommittee.

port prepared for a U.S. Senate subcommittee.

The Electronic Communications Privacy Act of 1986 (ECPA) "failed to anticipate fully the expansion of the number and kinds of private communications that can and will be carried by "siricless" systems where none or all of the communication is carried by radio link," the report

PRIVACY

# Users uneasy as 3Com moves to LAN Manager

BY JEAN S. BOZMAN

SANTA CLARA, Calif. - Even



Think about your own LAN for a moment. A complex mix of clients and servers. Hosts and terminals. Bridges and routers. Ethernet and Token Ring.

how long would it take to find the problem? And how much would that downtime cost your company?

With the SynOptics distributed management approach, you can isolate problems in just seconds.

The reason is simple. Visibility. The SynOptics intelligent hub architecture gives you the ability to see exactly what's going on within your LAN—port by port, node by node, in real time.

Our unique auto topology feature will draw a map of your LAN automatically, right down to the port level. So you won't have to worry about your network operator

The SymCypics Approach in Managing Networks Hubs gather, analyze and reduce LAN information the source Inlarger networks, Network Control Nescolation (C. Sentino en recoverante en Villago) Villago en la Ulbria Villago Ana Iran (1971, 1823) Avec et Albrosania et aus All LAX (1974) en espaglia base et assettas de Soli

disconnecting the wrong device. And you can zoom in and inspect LAN activity as events happen.

All this information is presented through an innovative graphical user interface—crystal clear and actionable.

All this works because our network management system was designed from the ground up to provide a systematic way to manage change in your LAN. Add in our innovative technology, and there is simply no better way to build LANs.

And because your LANs don't stand alone, SynOptics implements industrystandard protocols such as SNMP, and integrates them into your host management environments—including IBM NetView."

To get a free informational video, call 1-800-544-1340. We suggest you do it soon. You don't have a minute to waste.



The Hub Of Client/Server Computing."

### Everybody's talking OSI at ICA Frame relay talk puts Bellcore in new light DEC, AT&T and others relate plans for support of the network protocol

#### BY JIM NASH

AT&T's network manage-

branch exchange (PBX) prod-

Toshiba America Information digital PBX n 4000. It can

### BY JOANIE M. WEXLER



Have you noticed the way networks attract more and more hardware as they change?

It's a bridge box here. A router box there.

A brouter box here. Costly devils.

Which is why we've built NETBuilder. It lets you switch from bridging to routing to brouting by changing a single software diskette. The hardware stavs the same.



To simplify matters even more, NETBuilder's bridge, router and brouter have the same menudriven user interface. So there's a common look and feel. Yet, you can still create custom menus to suit a particular network environment.

As a result, NETBuilder cuts three big expense items in internetworking-new hardware purchases, and the training and servicing to support it.

Yet, you sacrifice nothing for this simplicity.

# Access to NSFnet broadened

BY ELISABETH HORWITT

ELMSFORD, N.Y. - Com cial companies will now be able to take advantage of NSFnet, the National Science Founda-tion's 45M bit/sec. backbone, which was previously accessible only to not-for-profit research,

vices, Inc.'s commercial subsidiary, ANS CO+RE Systems Inc., will provide the com-services. ANS — a cons

services. ANS — a consortium consisting of IBM, MCI Commu-nications Corp. and Merit Net-work, Inc. — operates NSFnet. The foundation had previous-by kept commercial traffic off of its network. NSFnet is a service its network. Nor net is a service offered free of charge to non-profit institutions at taxpayers' expense, said Steve Wolff, the foundation's director of

new service will pay for it-Wolff said. Indeed, profits from the service will go to upding the NSFnet infrastruc-t. For example, the founda-tis thinking of funding grades to 45M bit/sec. for the regional networks that semunicate via its backbone,

of 16 nodes on its backbone from 1.5M bit/sec. to 45M bit/sec. speeds, Wolff said. However, the links are now scheduled to be up-graded by fall, according to Allan H. Weis, ANS president and

BY ELLIS BOOKER SOUTHFIELD, Mich. - A call last month by telecommunica-tions experts at some of the country's largest automobile makers urging the industry to migrate from U.S. standards for

Automotive group thwarts

Edifact protocol proposal

The academic, research and government organizations that now use NSFnet will benefit by being able to use the same facili-ties to communicate with enter-prises with which they do busi-ness, Wolff and Pre example,

said. "It will be similar to the dis-

said. "I will be similar to the dis-counts most computer compa-nies give to universities." Service providers are likely to be one of the service's biggest customer segments, Weis added. "There are about 10 milion peo-ple on NSFnet; that's one won-derful market for an information remoder."

nent contractors, pl cals firms and compu

col is on ice, according to officials at the Automotive Industry Ac-tion Group (AIAG).

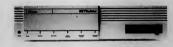
The proposal, made in early May at the international confer-ence of the AIAG, called for the

er or a Co-

standard to X.12 and that Ger al Motors Co. was still under ing this process. The third of

Changes.





NETBuilder's bridging, routing and brouting offer top performance for local area connections and wide area connections.

The result is modular internetworking that lets you manage changes on your network intelligently.

But why not see for yourself? Just call 1-800-NET-3Com Dept. D5057. You'll find the more things change on your network, the more they can stay the same.

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#### NEW PRODUCTS

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which connect

the LXE 228NC and 280NC network cor HER EASTNU AND ZOUNG BETWORK OF HER units. Up to 64 radio frequent its can be attached to each netwo

troner.
The 228NC and 280NC also sur

unications with IBM and Unix The 228NC, which controls a single radio frequency channel, costs \$9,460. The multichannel 280NC can be connect-ed to multiple hosts and is priced at

LXE

303 Research Drive Norcross, Ga. 30092 (404) 447-4224

# Local-area networking software

Software Business Technology Corp. (SBT) has announced accounting and business information software for compa-nies downsizing from minicomputers and

works.
The SBT Professional Series is com-prised of System Manager, General Led-ger, Accounts Psyable and Receivable, Sales Orders and Purchase Orders mod-ules priced at \$1,295 each.

The series offers a network mes center and bot-key access to bu data, according to SBT:

351 1 Harbor Drive Sausalito, Calif. 94965 (415) 331-9900

dicrocom, Inc. has announced the Micro-corte line of portable V.42 his moderns. The Microporte 542 (\$449) offeru invogaput up to 9.6K bit/sec. using 4:1 lata compression. It runs on a 9-V bat-

its unspectification of the control of the control

500 River Ridge Drive Norwood, Mass. 02062 (617) 551-1000

Digital Access Corp. has announced the Fractial 14x1 and 24x1 user-selectable

insum 1641 and 2641 uter-selectable bandwith moderns.

The Fracdial 14x1 supports dialogs bandwidth up to feRK bit/sec. in 56K or 64K increments, depending on uter selection. The 24x1 model offers that T1 or 1.344M bit/sec.capacity.

The 14x1 is priced at \$6,995. The 24x1 costs \$11,500.

Dietral Account.

24x1 costs \$11,500. Digital Access Suite 200 11501 Sunset Hills Road Reston, Va. 22090 (703) 481-6900

#### Network management

Hughes Network Systems, Inc. has re-leased the Graphic Network Operator Console (GNOC), a graphical manage-ment and control user interface for the company's Integrated Packet Network

ent and troublemoung.

The product is connected to IPN via a andard X.25 public network interface.
The GNOC with a 17-in, monitor costs 13.000, A version with a 21-in, monitor. \$13,000. A ver costs \$16,500.

Hughes Network Sys 11717 Exploration I Germantown, Md. 2 (301) 428-5500

#### Host-to-host

Forest Computer, Inc. has created a s-vice for program-to-program communi-tions between IBM midrange comput-and Digital Equipment Corp. VAX a

tems.
The service is part of the Connect
System, Forest Computer's IBM/D
connectivity product, it allows real-tidata exchange and communicates w
each system's standard program-togram interface via Token Ring or Eth

are connection system and stapped bidirectional terminal access, remote submission and print queue redirect Entry-level pricing, including program service, begins at \$39,000 Forest Computer 1749 Hamilton Road



Moving a data center to the suburbs isn't as far out as you'd think.

There's growing interest in moving large data centers from expensive downtown offices into cheaper space a little farther out.

But what makes perfect management sense can send a chill through MIS. Because as the distance hetween users and data center increases, system performance often drops dramatically Unless you're hooked up with Network Systems.

Our HYPERchannel DX networks connect dissimilar processors, peripherals, and protocols over long distances for true high-performance networking. And RDS" our Remote Device System, extends IBM mainframe channels to just about anywhere phone and fiber lines will go, with no performance loss.

Before management sends you packing for the suburbs and points beyond, call us at 1-800-338-0122 for a free consultation. We'll show you all the benefits of distributed information systems. Including the acres of free parking. Network Systems.

# **MANAGER'S JOURNAL**

### MANAGEMENT SHORTS IS executive wins award

# Leaping to top of the IS world

The success of Bergen Brunswig is often attributed to the work of Anthony Vallario

BY JIM NASH

PROFILE: Anthony Vallario



# Survey: MIS likely to draw fewer MBA grads

COMMENTARY Glenn Rifkin

### Peterson won't be forgotten



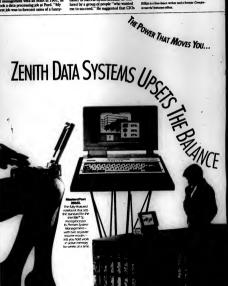
ion out of the IS

tablem 10,000 izered most.
he left UCLA's graduate school gement with an MBA in 1961, he resuccessing job at Ford. "My have of a funny-

looking little car called the Mastang for agry with a brush cit named Lee Rocca. "I sat down and concerted a bunch of numbers and came up with a feecest of sunders and came up with a feecest of Sco.00 can sold in the first year. It is concalled at me and 50,00 of these of concal both of the second of the seco

he next time 1 nerous a measurement to you."

He admitted that his job was made size at Merrill Lynch because he was med by a group of people "who wasted he to succeed." He suggested that CIOs



COMPUTERWORLD

### Vallario

CONTINUED FROM PAGE 53

holesale drug business, and it is hard to d a trade journal story or Well Street was a story or Well Street to 44.4 billion company's auccess in regent to Malario's 16 department. His long and sometimes stormy tenure 15 leader began to long after Vallario salted the could not live out his days as and another worker at a drafting table." ntil then, he had focused on becoming an

job at Cody Cosmetic Čo. in New York af-ter the war, however, he found himself fascinated by the office machines and or-ganizational principles. "I was in zwe of it," Vallario says. "What did all these peo-



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# **EXECUTIVE REPORT**

FINDING THE RIGHT IS STRUCTURE

# Here come the hybrids

The latest shape for IS organizations is a mix of centralization and decentralization



ry P. Cooke, a veteran IS ger and president of The ative Insight Group, a con-icy in Bryn Mawr, Pa. deed, a poll of 1990 Com-world Premier 100 win-



#### ►QUOTABLE:

# used from page 57 old, Conn. Meyer says the push to aline meant users were beginning scinte the value IS could bring to

concentrate mean since were beginning concentrate was to conditional to separation the west for conditional to West them is an emerging multitude of the contract of the contr

banness mits they serve. In such in-tenances, project princities and badgets are set by the banness community. True, bey-spreame decisions are still being made by computers, local-area networks and op-paramental computers in increasingly-ing managed by basiness departments. company by basiness departments. conserved con-cerned coveraging at several different nanagerial levels. "To make this work, Sr must have discipline," says Nexus. Whiter, a sensite consultant at Arther D. in the conserved consultant at Arther D. in the conserved conserved and the con-ging form.

# Winning shapes

any companies that started down the road toward decentralization in the 1970s and 1980s are now pausing to think.

Some have changed direction, others have kept moving ahead, and still others have taken two different paths.

Computerworld recently asked five 1990 Premier 100 firms a simple question: "How is your IS department organized and why?" Their illuminating answers follow.

- ALICE LAPLANTE

# Bankers Trust trusts users to control bottom line

Tired of complaints that slow response was harring the bottom line, the information systems staff at Bankers Trust Co. made basiness managers put their money where their months were. Literally.

Six years ago, the New York-based francial institution decentralized its IS operations and gave individual business lines.

mancial antithode devolvationed to 3: complete control were in systems operations and decisions. The bell-ming quickly consect from business managers that they cart most believe to be a second of the second of the second of the peak broaders contributed \$5 Foundard such Methods. Or Foundard such Methods or the Beachest about completes, and the second of second second of second second second second second seco

milyones. Mathai has no dvable that the choice was correct.
"Baskers Trust has such a broad range of widely devergent service. Married of design the was to put the technology as colore to the business line as possible." Mathai says.

Trust's three business groups in Strates subjects. Trust's three business groups in Strates subjects to more than a dozen business lines, each other has been subject to the hast of the post to the hast of the the hast of the the hast of the the hast of the hast of

particular organization. "We wanted our applications developers to live and breathe the very specific business issues of each particular line," Matthis explains. A small Fechnology Strategic Planning Group sets bread policy standards and runs the telecommunications facilities. Through it all, there is "constant communications for the property of th

Mathat: 'We wanted our applications devel live and breathe the very specific business isso

nication" between the centralised archi-tects and their counterparts in the busi-ness units. However, it's clear the

ness unth. However, it's clear the businesses are in the driver's nest. A key goal of the approach is to shorten development cycles. "We found from ex-perience that the longer the deliverable time frame, the higher the probability

Matthai stys.

The careers of IS workers in Bankers
Trust's decentralized structure don't suffer because each IS department is large
cought to offer opportunitiest, in large
cought to offer opportunities, he adds. "If
you only had five or 10 IS employees in
each unit, that might be a problem,
but there are hundreds."

but there are hadron."

Resources widely stretched
Mathia do diagnes with criticism
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repository.

Mathai says he expects Bankers Truss
will continue to refine its organizational
structure as domestic and international
strategies change. "I expect we will neary always he in a state of flux," he says. »

# Paine Webber's silent credo: Conflict is good — to a degree

At Paine Webber, Inc., the unofficial IS croto might be summed up as "Conflict and ground a produce of the prod

different directions.

"It's a balancing act, and there is no necessarily right solution other than (that) you have to keep focused on the future, "he continues.

To help keep creative teasions optimistly high, Paine Webber has developed what Benemoche calls a team-oriented,"

ture in the IS department.

Each line of Paine Webber business-finance, human resources, capital makets and investment banking — has invituals who look after the technologued of that particular division, Bo

monche syn.

However, the actual applications de-velopment takes pince in central IS and to handled by techniquist who specialis in a particular line of business. The two propos of specialis are cent tegether and told to device the bus techniquis or each business with. Beammache express contral business with. Beammache express contral contral. "I feel way strongly that we need to ediminate data rendendencies and the emissate data rendencies and the emissate data rendencies and the emissate data rendencies and emissate data rendencies and the emissate data rendencies and emissate data rendencies and the emissate data rendencies and emissate data rendencies and the emissate data rendencies and emissate data rendencies and rendencies and rendencies and emissate data rendencies and rendencies and rendencies and emissate data rendencies and rendencie

need to be reposite to the business.

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There's more to come. "We're just starting what is going to be a very thorough educational process for everyone concerned." Beammache sure.

# Centralized Union Texas successfully flexes

deed, MIS director Richard White the Houston-based oil company has to great lengths to counter the real ers of a centralized information sys-

department. We have a highly involved community," he says, "and ieve we've been successful

one we've been successful ying very close to our bar-"The IS structure at the any reflects the larger cor-e structure: simple, phtforward and highly cen-

Hired.
Union Texas has approxitely 1,800 employees, 900 of
sich are located at hesiquars. The reat are acattered
coughout oil exploration and
mundacturing sites around the
rid. Because most key execues are based in Houston, stracip business jamming decisions
made there, White says.
Libble mere conventions.

### 3M Co. means matrix, matrix and more matrix

With a product line that includes Po-notes, Scotch Tape, paint stripper, m

# Power to the people at FMC

Management philosophy puts power in divisions' hands

turer, has a complex corporate struc-rand an information systems organiza-

tion to match.

The company's chief inform cer is located at corporate her in Chicago and is directly resp corporate technology planning

# Who's the boss?

CPO	The chairman
Chairman/CSD23%	Vice president (other)
090/President12%	Vice president, corporate services
Executive vice president	Corporate vice president
Senior vice president	Other
You would not administration	

# Following the striped line

Noted IS academic's hybrid model enhances decentralized centralization

BY YOSEPH MAGLITTA

the publication of the article, the author is must about new perspectives on the work. A request made to his New York office for an update on the work was political decided. With Was Sissand to the work of the New York of

CENTRAL IS

Cff Chart Dance St. John

Some small-company IS man-agers have struck a compromise between centralized and decen-tralized operations. This means individual user groups control function-specific applications such as accounting but adhere to strict standards for commonly shaded information.

A good mlx
"We have a mixture," says
James Dean, director of MIS at
Cooper Energy Services Group
in Mt. Vernon, Ohio. Cooper
manufactures large engines and
compression equipment for the
gas and oil industries.

continued doing so, while others were prompted to begin experimenting with the new approach. Other recent publications of interest include the following:

• The Corporation of the 1990e Information Technology and Corporational Transformation. Edited by Michael S. Scott Morton. Oxford University Press, \$24.95. The 331-page resit of MIT's Stonn Business

### Small firms not immune to structural wrangling BY MARTY LEVINE

For Unix

XEDIT too...

gpr time. Unpremiusly, de act opposite is often true. While many large corpora-ns have made significant prog-ss in resolving structural ten-ms between IS groups and end

In many cases, control over formation services often re-

Sweet Hills, N.Y.

mains a political tug-of-war, pit-ting user departments eager for technological autonomy against the "big picture" objectives of contralized IS departments. "The capabilities and use of technology have evolved at a

rectnotogy have evolved at a faster pace in user groups than in central data processing groups," says Ron Pharis, an IS consultant at Boise, Idaho-based Produta, Inc. He sees the growing independence of small-company

I disputes. Vhile the struggle sounds fa wase the struggle sounds fa-miliar to any large-company IS manager, it may be more intense in small organisations, which can trail their larger counterparts in institution reforms

At Cooper, some desktop ap-plications such as shop floor con-trol, computer-aided design and manufacturing and office sys-tems are distributed. "But they all send data to the mainframe,"

At Cooper, some desktop ap

Lean expans.

Some very small companies have managed to avoid structural problems. A good example is R. S. Tipton, Inc., a 15-employee software consulting firm in Littleton, Colo. The five Apple Computer,

The five Apple Computer, Inc. Maxintoshes that form the core of the company's data pro-cessing system are linked over one local-area network. Each de-partment handles its own data processing, and there is fittle in-teraction or information sharing the core mercial of the core of the processing and there is fittle in-teraction or information sharing nong groups. Regardless of what structure

Regardiess of what surucause is used, some small-company users say the dynamics between IS and end users won't change much. "This is still a struggle between the need of individual user groups to solve their own needs

# Facing an age-old dilemma: Who to put where, and why

No single structure is right for every information systems

ery information systems oup — needs vary greatly group — needs vary greatly from enterprise to enterprise. But factors such as company size and complexity of product line can be big determinants for ar-riving at the most effective ap-

One of today's most popular structures is a mix of centralized and decentralized structures. Who is a good candidate for a hy-

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tion, file transfer, copy and paste;

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tionality and ergonomic design. With four generations of leadership terminals, Digital has consistently set the standards for excellence and reliability.

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tion on screen and in local memory more efficiently. Forms management, pop-up menus and help messages enhance the interface and response times for improved productivity. The V1420 also offers single-wire, dual-session functionality for using two applications simultaneously. Information can be "copied and pasted" within or

the VT420's six pages of offscreen memory, local macros, communications speeds to 38.4K

DIGITAL ON TARGET AGAIN WITH

VT 420.

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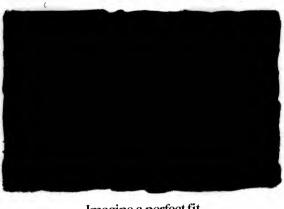
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between sessions. Additionally.

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so if you think the ACCULINK multiplexer sounds like a perfect fit with your requirements, call 1 (900) 482-3333, Ext. 312. In Canada, call 1 (416) 491-0453. For our free booklet that describes using ASDS for fractional TI solutions, call 1 (800) 482-3333, Ext. 313. Or, fax your request to 1 (813) 592-103.

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## IN DEPTH

## Legal writes

Issues such as data sharing, vendor alliances and code reuse will change the face of computer law in the next decade. Here's what to expect.

#### BY MARK RADCLIFFE





able software depicts in benefitsung the orderent, but it also a large inchism. The trend trend code distriction of the district of the distri

The use of these tool kits may also also difficult the determination of copy-ght infringement. Two wendors may use a same tool kit to develop a program

with similar functionality (for example, a function inships in package). Resume each had the right to be a frequent on the first the size of the register of the first f

- COPYRIGHTS:

TRADE SECRETS

Legal complexity: The rise of standards, Cur-

tial are leading a num open their proprietary This shift to ope

and control. What form of legal protection is available to standards developers for a standard that may consist of a fist of microprocesor commands or a description of an application program interface? Who controls and determines changes to the standard, both initiality and as it develope? Who enforces it against third parties

standard, both initiality and as it developed Who enforces it against third provide the provided standard of the provided These questions will be insured dif-iercusty for different types of standards What is certain, however, in that which the increasing use of combinations of prod-ucts from multiple sendors and with growth of standards, claims of competibility are increasingly important to use the provided provided to the provided type of the provided provided to the provided provided provided to the provided pro

growth of standards, chains of competition, we be transmissed, mortest the sussessibility is just beginning to be difficult. See the standard of the standard of the standard of the standards of

es. rademark law will play an increasi portant role in establishing standa attibility. For example, the Sp mark designates compliance

dard.

A private closed standard is conby a private party and is not license
third parties. Examples include Li
1-3-3 user interface and Apple's op
ing system. The Lotus Develop

Reperback Software, Inc.

Reference: Microsoft

Legal complexity: The special complexity: The special complexity and the special control of the special control of

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III LEVELS

ight protection for computer software. This is not a simple task; these two forms of legal protection guard different rights. attent law focuses on the invention in a machine" or "process" while copyright rotector a "writing" and focuses on "ex-ression," which can include structural

ments (see chart page 66).

Copyright law, with its longer term of tection (a minimum of 50 years), dit undermine one of the most basic cites of patent law: a limited term of tection in ceturn for complete disclo-

protection in return for complete discussive of the investigation of other guidance.

Without legislative of other guidance, without legislative on discussive of the control bearing o

e of legal protection of da olved. The courts have en

he scope or sage—
in surresplowd. The courts have empayment of the courts have empayment of the conflicting theories to justify protection of the how was conflicting theories to sweet of the how was clearly and the confliction and organization.

The sweet of the how theory halds that copyright protection should be based to the condection of effort that was expended in collecting data. This to a separate in collecting data in the service of the collection of the co rties from copying the ed on this theory.

pages based on this theory.

The selection and organization theory provides that collections of data can be protected only if the collections demonstrate some minimal level of selection and organization of individual components of

OBIA.

Under this theory, the white pages of a telephone book would not be protectable under copyright law because they consist of all of the individuals in a particular area (no selection) arranged alphabetically (no

organization).
The U.S. Supreme Court has adopted the selection and organization theory as the basis of copyright protection for collections of data. Its application to datases will be difficult because database or-mination can differ markedly, depending on the particular datab

on the particular database used. The use of databases and other on-line services, including electronic mail, also raises new and different challenges in the area of vendor liability. The Supreme Court suggested in a recent case that it would not give information providers the First Amendment defense against liability accorded newspapers and other tradition-

The increase in the amount of data col-lected about individuals and the ease of collating and distributing such informa-tion has raised significant database priva-

cy concerns.

For example, after 30,000 complaints,
Lotus and Equifax, Inc. recently asnounced the termination of their Lotus
Marketplace database of consumers'
credit history.

credit history.

It is still unclear, however, what level of responsibility an on-line service provider has regarding defanation and copyright infringement by its users. No real guideline exists to determine the appropriate allocation of risk among the service providers (such as Dialog Information



ortant and too te hands of the Those asues are too impor-ng to be left in the h munity, however. 7

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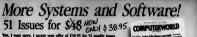
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## **COMPUTER INDUSTRY**

#### NATIONAL BRIEFS

#### RSVP - and step on it

More than 50% of the 400 us information systems prof plus information systems protes-sionals who were recently sur-weyed by Deiran, N.J.-based technology market research firm Datapro Information Services Group named re-sposse time performance as one of the three most critical criti-tion of the control of the control of the time performance as one of the three most critical critiof the three most critical crite-ris in choosing a service firm. Price and technical expertise emerged as the second- and third-ranking factors. IBM and Digital Equipment Corp. showed up in the survey as the

#### Big score at small sites

Scotts Valley, Calif -based onfi-ware house led second- and third-place entries Wordper-fect Corp. and Claric Corp. in the study, which was based on a national random sample of 1,784 small and medians-size busi-neases at sites with fewer than 500 employees. The respon-chests pointed to anotyware capa-bility, ease of use and support as the factors must likely to yield end-user satisfaction.

#### Bigwig, littlewig

The founder of router big-wig Ciaco Systems, Inc. in Menio Park, Cairl., has spun off ed of the year as a consultant ad will continue to sit on the rm's board of directors.

## Ada making its mark at commercial sites

BY GARY H. ANTHES

Century

After 10 years, Asia — concoived by and for the U.S. Deportrased of Delens as the powprogramming language — in 5andly activing on the Pretagos, aded by modelsteen,

As a result, Ada product tracdurs, beginning to see come paymanufactured to the concontracted by modelsteen,

As a result, Ada product tracdurs, language — in 5as and product trac
durs, language — in 5as and product trace

As a sender of trace in 1
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re is still no consensus as to ether the language will take like Unix or fizzle like PL/1.

h..... 834.0 88.7 Total . . . . . . . . 8144.2 ment . . . . . 8741 ...... 690

## Motorola exec decries government regulations

BY GARY H. ANTHES WASHINGTON, D.C. - "Tm



#### NATIONAL BRIEFS

#### Lives of their own

► The working down of the AT&T/Sun Microsystems, Inc. Aliance will do nothing to dampen the ferver of either the Open Software Foundation (OSF) — the consortium founded to safeguard the market from being unfairly wrenched to-

ward AT&T's Unix System V national opened for business .
Simgapore. The Unix group chose Singapore as the site fr which to launch its expansion

throughout the Pacific Basin no only for its strategic location but also for its strong telecom-munications facilities, accord-ing to Unix International Chief Executive Officer Peter Cun-

#### Royal welcome

▶ Here is one more advantage of the global marketplace: With-out it, a San Diego-based busi-

ket — Software Products In-ternational, for example — would not be likely to be honored by the King of Spain. Just ask Software Products President John Bowne, who traveled to

### Ada

FROM PAGE 69

f., get into business in 1981 "productise" software engi-ring techniques, according to cutive Vice President Bob d. The firm's decision to

Bond. The firm's decision to base its products on Ada was a secondary and less important one, Bond said. "We like Ada we had a less of success with it—but Ada is not our business." Rational seels Ada compilers, development tools and hardware genered for developing large Ada systems. Last year, IBM bought systems. Last, year, JiBM bought a significant equity stake in the corrupany and is now using Rational tools in the \$3.6 billion overhaud of the U.S. All Traffic Control System. The Pederal Avistics Administration (PAA) Advanced Automation System will be a showcase for Ada one way or the other: The FAA says it? a million lines of Ada toods uset not fail more than three seconds ner went and the property of the p

Until recently, Bond sai good alternative to Ada est Now, AT&T's C++, an object-oriented language, Ada for the affections of

#### Software industry bucks trend

BY NELL MARGOLIS

Recession notwithstanding, the U.S. software industry is going full steam ahead — and is looking to increased productivity fooded by fleshible work terms to maintain its upward trend in the future, according to two reports issued late last month.

Some 500 chief enecutive officers from a cross section of the control and the control

Software Council, Inc. The respondents indicated expected 1991 software sector employment growth around 15%. The anticipated expansion, according to the survey's findings, will be driven by mounting pressure on software companies to support "multiple every-like"

Meanwhile, a second survey of commissioned by the Massachusetts Software Council — its fourth Annual Survey of Concern & Lybrard — shed counting firm of coopers & Lybrard — shed so some light on how the companies ter

Please sir, may I have a Although the aboving economy in 25 at some 16% of the 258 software fire

Ania	Chief executive officer	Director of marketing	Director of sales	
Name and Address of the Owner, where	3-156	-	12%	96
Mid-Atlantic	7%	11%	5%	11%
Milwet	BK 1	STATE OF THE PARTY.	45	- SK
South	13%	85.	5%	3%
West Court	11%		5%	
Source Coopers & Lybrand			CW Che	T Dureen St. Joh

growth estimates.

"Employee productivity and competitiveness of pay are projected to be top issues in attracting a qualified work force in the 1990s," said Coopers & Ly-

and compensation consulting rector Davis T. Gallison III. jounting popularity of annual mus programs and long-term contive plans, he said, reflect

C and Unit experience may pre-fer C + + fe e maker peoples, much as General Electric Co, and fer C + + fe e maker peoples, much as General Electric Co, and de C + fe e maker peoples, much as fermion and the contraction of the C + fermion and C + fermion

Deter, business development vice president at Charitily, Va-based Verdix Corp., which sold \$13.5 million worth of Ada prod-ucts last year. Automobiles will someday roll off of assembly lines with one million lines of a

support the 64-ort inter-point arithmetic needed to represent large dollars and cents figures. Moreover, Ada may be ad-vasting further into the com-mercial sector than it appears. Ralph Crafts, president of the Ada Software Alliance, said com-mercial use of Ada is hard to mercial use of Ads is hard to measure because users often guard their success stories as closely as trade scorets. For in-stance, he said, four Fortune 500 firms slated to speak at a 1988 trade show canceled when too management chose to keep their Ada experiesces under wraps.

\* Xerux Business Products and Systems, anothe Award winner, has chosen Ada for control activated it evaluated a CCF ++ consideration and two inguages as well as Ada and found Ada best in que grages, quality of tools and seturn on the investmen to some to the new language.

GARY IL ANTHES

#### What auditors see

on may be bugs, but they might not show upon ye of twee construction have no financial incentive be the code," and Rahph Crafts, Arth Schreure Alline They would need to spend from 15% to 25% in intig in order to maintains reuse, a penalty the militions of oblists from the bottom line of large pa low cirrying the value of the vensiting nature proposed to the contract of the contract after urged firms to argue with their auditors to full suitation and deposition of reuselless portions.

their suditors to allow the suble software. A change he ents in software would en-puages geared for the devel-e software, he said. GARY H. ANTHES

JUNE 17, 1991

COMPUTERWORLD

## Heroic Achieven

## The Computerworld Smithsonian

Smithsonian Awards program searches out and publicly honors men and women who are applying information technology to make our planet a more humane. healthy and cooperative place to live. On June 10. 1991, these heroes were celebrated at the National Building Museum in

Washington, D.C.



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### The Third Annual Computerworld

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### Nokia acquisition is just the first step for ICL

Company denies a rumored merger with Olivetti but affirms its commitment to Europe

#### BY RON CONDON

at policy," be added.

that poncy,
livetti is reported as saying n
any deal with ICL. The two compahave had merger talks in the post, but
tit Chsirman Carlo De Benedetti has
the from Japanese

ting closer, de

firms recently made a joint bid for a Brit ish university contract, and now ICL Aus-ralia is bidding Fujitsu's MVS-compatible



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ope was one of the main reasons for ac-uiring Nokia Data, especially as its prod-ct portfolio was, to a large extent complementary to ICL's.

plementary to K.T.s. utizzed on whether any jobs watened as a result of Nokia Da NO employees now being added to pany's payroll, Bonfield pointed despite the pressure on profit m



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## COMPUTER CAREERS

## Job rotations grease long-term IS wheels

van Wride became a be-liever in job rotation when he was moved from the information

othe company a assumm con-piler position.

While formit college degrees of technical provess are on rode's list of career develop-ent must-dos, "If I have to sis-e out one thing. I can't think of youthing more beneficial" than by rotation, he says. "It exposes so to new technologies, new ap-lications, new business areas of nom reaches."

plications, new business areas and new people."
Since his days at Denny's, Wride has moved on to become di-rector of 1S at Nissan Motor Corp, in Carron, Calif. He says job rotation makes for well-rounded employees with better cross-departmental communica-

Job rotation "outs across ev-ery area of development a person needs to get," Wride says, "and there is direct correlation be-tween how broad you are to how high you can go."

For employees, there are sev-eral advantages to rotating jobs and responsibilities:

cy by working on different types of hardware and software. • Rotated employees have more interaction with a greater num-ber of people.

oful rotations ofessionals who plan to make ir career in IS and who see job potation as a useful way to gain business experience will find that some rota-

ons make more me than others. ful rotations are in the functional ar-

ry reace to the is pro-fessional's current role.

For instance, a programmer who writes financial applications will usually find that a job in the finance department will be easier to adapt to than one in market-ing. Once the rotation is completing. Once the rotation is complexed, he can go back to IS with a ation of the user per-

spective. Fortune 500 companies are the most likely to offer this type of career development plan, job placement specialists any. The benefits for employees are great-er at these large firms, where without such programs, IS workers can sometimes become com-partmentalized into one area.

lenges, says Rob Graven, owner and president of PFC, Inc., an ex-But, he adds, the long-benefits outweigh the

"Any kind of transition costs time and money," Graven says. By taking a business analyst from one area and moving him to another, the company will have two workers in

worker learning a new area and the worker filling the business analyst's take up to six months to get up to meed in their new jobs. Nissan is still in the early

stages of the job rotation process, Wride says. It is a companywide program, but he can take credit for starting the process in the IS

Wride agrees that the initial investment period into a job rotation process shows few quantifi-able paybacks. "The company might not get payback for four to six years," Wride says. But as each year passes, the company will have a greater percentage of employees who have a broader understanding of all aspects of Another issue to grapple with program is fear of the unknown, Wride says. "If you're moving

into a job you've never done be-fore, you probably ought to he a little apprehensive," he says. "But after six or 12 months, you figure out that you can pretty much do any job" if you've got

figure out that you can petry to good beginner seed on the companies, such as X-Some companies, such as X-Some companies, such as X-Some companies of the physical seed of the Seed of Seed o

may last two years or longer: Many firms say that the first Many firms say that the first three to six months in a new job is the "breaking-in" period and that a worker should remain in the job for at least 18 months to contribute to that business.

Moving in, moving out For many companies, the most common types of job rotations are interdepartmental. IS work-ers may rotate through several IS

positions, acquiring new skills as they go. Less frequent are in-stances where employees from the IS department are rotated to jobs outside of that department. And even less frequent are rota-tions that involve bringing non-systems workers into the IS de-

partners.

I Levi Strauss & C. G. is in example, the norm may be changing. At the San Francisco-based apparel menifacture, the shift toward IS workers gaining more business wichers gaining more business wichers gaining more business with the cross-departmental flow of workers and the shift of the cross-departmental flow of workers and the shift of the cross-departmental flow of workers and the shift of the cross-departmental flow or workers are sized to Study with the cross-department of the cross-departm However, if Levi Strauss &

Donna Rund, director of informa-tion engineering. One way to make that happen, she says, is by first giving people a "dotted-line" responsibility to IS for their respective business areas. In the last two years, she says,

In the last two years, she says, we director-level business managers have moved into the IS environment. One, a former merchandsing manager, is now director of end-user support. They bring a bulance and perspective that if you just had pure technical, you don't quite get."

That is not to say IS people do so how a change to move as

That is not to say is people on not have a chance to move as well, Rund adds, citing an IS bus-ness analyst who moved to mer-chandising and is now one of the highest officials in that area.

Roan in a Communicative order or





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### Demand for Unix C programmers soars

BY ALICE LAPLANTE

rogrammers who can write applications for Unix in the C language are getting the red carpet treatment. A strong mand for these professionals a been created for two reasons: it is becoming more popular in ecommercial sector, and C is erwhelmingly the language of coice on Ulux because of its portion of the contract of

Four years ago, Unix was con-sed mainly to scientific and en-neering shops. But the increasing acceptance of IBM's AIX and Sun Microsystems, Inc.'s Sparestations — coupled with the downsizing of mainframe-based applications onto minicomputers and local-area networks — has

rated interest in Unix in accessrated inscreets in Utux in the commercial acctor.

Brokerage firms, manufactur-ing facilities and even banks are moving to take advantage of both the portability and cost savings inherent in a Unix-based, smaller

inherent in a Unix-based, smaller systems environment.

"Unix is becoming a ubiquitious platiers, singularies, reductional BM mainframe environindustries," says Richard Wesder, national director of the information systems division at recruitment firm Robert Half International, InBecause of this shift, Weeder
says, there is a hort-pupity of cray, there is a hortportate applications and communications systems.

"Good C programmers are hard to find," says Joe Hawkins,

vanced systems group at Pacific Bell in San Ramon, Calif. He is currently looking to hire C ex-perts for internal expert systems

Improved education
Other IS managers say the shortage of Unix C programmers is beginning to ease — thanks in
large part to the fact that IS and uter science departments iversities now teach C as a ar part of the curriculum. regular part of the curriculum. "Schools began incorporating C a few years back, so we are now seeing relatively young people with a good graup of the lan-guage," says Frank Panella, di-

ector of systems development at enefits of C in the Unix

vironment are many. C can be very productive guage in a busi-

mars, with an eye toward making them more versatile. "This will ance productivity as well as

stated.
"It's a difficult language, and there are too many ways to giv-yourself in trouble with C," says Dale Heller, assistant vice presi-dent of IBM systems and pro-gramming at Service Merchan-dise Corp. in Nashville, Heller

C with the excitement about PL a few years ago.

"It supposedly was buildin up a tremendous momentum, be a year or two later, people will up and it never really caught on, he says.

#### Opportunities knock for DOS, too

eir desistop standard and have a host of inter-liv developed DOS applications to bring up to

te. The reason for the high demand is that "the uning curve for a good C programmer in the indown environment is from air to nine suths, and Windown has only been out a fittle or a year. That makes it tough for companies find people with expertise," asys Chris Proch, and of Ocean Consulting in Excendido, Calif., and of Ocean Consulting in Excendido, Calif.,

"We've still seeing more demand for Unix pro-miners than DOS C programmers, and con-tions seem willing to pay more for the Unix ex-cities," says Deve Plansbaum, managing scotor for the Northern California region of groe EDP. ALICE LAPLANTE

LaPlante is a free-lance wester based in Palo Alto, Calif.



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#### IS road smooth in auto cities

#### Diversified region weathers manufacturing slump

BY JILL VITTELLO

t first glance, Detroit and Cleve-land, the No. 1 and No. 2 American cities for car smandscturing, cond time for car smandscturing, would seem to be the last places where an information systems demands would find work. In the last acte of 1990, Chrysler Carp., Ford Act Co. and General Materia Carp., Ford Act Co. and General Materia Carp., Ford Act Carp., Ford Car

4.8%. But despite sobering statistics, IS pro-fessionals and recruiters say Detroit and Chreshand are still good places to five and work. Both cities have economic bases di-scrite enough to long more currently em-ployed IS professionals hony — and happy. The cities have worked hard to turn second their termined images by spruches.

up their common arress with maps air, restaurants. In addition, Detroit and Cleveland offier a variety of entertainment opportunities, as well oppular professional sports teams and sporting events, such as the Grand Prix in Detroit. In fact, recruiters say most Es professionals are reducent to relo-cate because they find the cities familiar

of consortable. Invascably, many of the thriving compa-ies in Detroit are Japanese. In fact, se-ording to a recent report in TA. But threat Journal, the Detroit Chamber do-nomerce figures that without the pa-ses himing Americans to run their nearly of On factories and aboratories—many for thick are auto-related—employment in et eight counties aurrounting Detroit out the eight counties aurrounting Detroit out the eight counties aurrounting Detroit as well as sension beam has the re-sisten beam has the re-sisten beam has the re-sisten beam has the re-

opoter industries esithy American companies in Detroit develand can be found most reality in dustries such as banking, insurance, opitals and medical supplies, where emplaines are generally maintaining or fling IS staff.

're working six days a week to fill

jobs in these hot industries," says Joy Car-roll, supervisor of IS and placement man-ager at Robert Half International, Inc. in Troy, Mich.

The not-so-hot areas are largely in the

The not-so-hot areas are largely in the American automative business. GM, Chrysler and Ford were not available for commissed on the outlook for 15 profession-als in their organisations. Other compa-nies that are doing poorly are auto-related, such as companies that supply parts or provide services to these American auto-

provide services to these American auto-making giants.

Yet the non-auto-related companies that are downsing in these industrial centers aren't cutting back on IS. Blue Crous/Blue Sheid of Michigan, for in-stance, recently downsized its operations after installing neveral new technologies but added 10 positions to its IS stalf of 250 developers last year, according to John Highos, vice president of IS.

Yelent show IS employers say skills that will give IS professionals the most mileage in both cit-ies are those related to IBM mainframes or Application System/400s. Next on the list, they say, are DB2 and computer-aid-

and, any any, are to be and computer and ed software engineering. But the profile of an ideal job candidate good beyond technical expertise. Employ-ers are becoming increasingly selective in their hirring procedures. Cleveland and Detroit employers say they are looking for "value-added" employees: people who bring a mix of technical and business skills

being in the declaration of the second of the technological control of the second of t





Inc. in Aurora, Ohio.

Inc. in Aurera, Ohio.

Even in situations where companies are forced to by off Sworthers, none departments are being permitted to bring business systems analysis on board.

For example, Jaho Cleg, who president of information services it Cardinal-based of information services in Cardinal-based on information services in Cardinal-based in Cardinal Cardi

yst with experience in finance and man

syst with experience in manace and manufacturing.

The outlook in Detroit is just as competitive. People vying for senior-level systems analysis job are expected to have advanced degrees, preferably MBAs, according to Carroll.

Corporate executives and recruiters

Corporate executives and recruiters leave IS professionals in the Detroit and Ceveland areas with this advice: Increase your skills through education. Read indus-try publications frequently, take courses at community colleges or enroll in ad-vanced-degree programs.

#### MIS & DP OPPORTUNITIES

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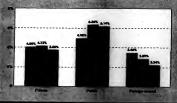
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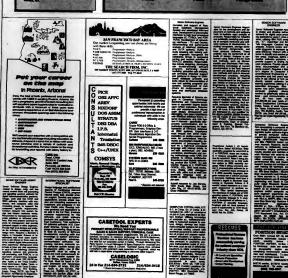
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AT Model 239	\$625	\$725	\$600
AT Model 339	\$750	\$1,000	\$700
PS/2 Model 30-286	\$1,150	\$1,300	\$1,000
PS/2 Model 60	\$1,300	\$1,700	\$1,300
PS/2 Model 70P	\$3,000	\$3,500	\$3,000
Company Portable II	\$700	\$1,066	8790
Portable 206	\$1,100	\$1,350	\$3,000
SLT 206	81,906	81,700	81,700
Portable 306	\$2,000	\$2,100	83,000
LTE 304	\$1,750	\$1,900	81,000
Dookpes 204	\$800	\$1,000	8700
Desigeo 306/20	\$2,180	\$3,000	\$2,000
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# STOCK TRADING INDEX

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## Computerworld Friday Stock Ticker



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Leell stock orders to confirmation of deposits in an account.

On-line since 1977, the system is

The variety of multimedia choices makes students to select the meth-d of expression they are most con-rtable with. Meanwhile, the zu-noring process forces them to un-pressed how others will see the od of exp

is a much more positive approach.

And we can also seesk in the back door and address some of the things they can't do." — Donald St. John

Not. say: Richard Metcale, spatisman for the society. It is operational in 72 countries at 3,000 institutions, such as beats and stock exchanges. Users pay a yearly lice as well as a charge for each recessing sense. On the contract of the operating contars in Vergein and in Netherlands. Processors at the creaters store and forward messages to the contract of the c

mastop. The pro-rum responds to sys-

Security is important, so the system uses authentication of mes origin, encryption and decryption message integrity verification.

ings pooled from member agencies. To make it happen, Stern applied for a grant from Apple Computer, Inc. for networked computers to link the job agencies. By 1988, Apple had donated 11 Macintosh SRs, including a contral-site node with 4040 bytes of main memory at De Asss.

Fifteen jobcomment agencies more share the BACED job postings, commonicating with De Assaw is denoted.

municating with De / ed, dial-up 1,200 bit

ors now have acas many listings on to any placement

than were known to any placement agency before.

The jobs nectuoric went into full swing in 1989. Since then, some 1,400 job listings and notes have been posted electronically. Hundreds of jobs are filled through the network yearly, at De Anna since, roughly 70 disabled people are pinced into new jobs nect hear - Jean S. Baseness

#### Manufacturing Raychem Advanter

As the first of Raychem Corp.'s man-ufacturing plants to adopt plantwide computer-integrated manufacturing (CIIst), Raychem Advanter has be-

(CIM), Raychem Advancer has to come a showcase for paperless, sat mated production systems. Managers at the Richmond, Brish Colambia, facility have been ab to caree out a market niche in fillis small, custom part orders. Advant



se in lot sizes as tomers to purchase m lot sizes as small as 15 units, instead of hundreds or thousands, says Jim Balcom, a manufacturing consultant at Coopers & Lybrand in Vancouver, British Co-

weeks, not months.
The plant hardware consists of 14
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(CAD) machining and intelligent documentation systems from Symix
Computer Systems, Inc. and Cin-

umentation systems from Sys Computer Systems, Inc. and Ci linc, Inc. With Cimline's Integration Pro uct Process tool, Advanter's diff

the computer-sided manufacture (CAM) negetine, which moves job into a CAM file and then rele it to the shop floor. The order pears in a Cimileo intelligent of mentation form at the tool present existion, where a technician school the tank. — Maryfran Johnson

#### Media, Arts and Entertainment The Tenderloin Times

The Tenderioin is one of the toughest neighborhoods in San Francisco. An inner-city, low-income community of 25,000 mostly elderly, disabled and immigrant residents, it has all of the members and doubt community.

nongrant residents, it has all of troblems — drugs, crime, illne numbleseness — that plague similares in the U.S.

But thanks to a core of crusadi semalists armed with deaktop pushing systems from Apple Company.

#### Environment, Energy

#### Research Alternatives, Inc.

When thousands of gallons of oil spilled into Pentsylvania's Monorga-helt and Ohio rivers in 1969, the Emergency Information System was there. When Harricane Hago bar-reled into the Puerto Rican coastline, into the Puerto Rican constline, into the Puerto Rican constline, intergency Information System here. When Jamaicans began re-ing their lives after the fury of came Gilbert, the Ricargency

codures can seem interns worklowide message proc communications for finantians are handled by a system that'a positively SWIFT.

The Society for Worklowide Interbank Financial Telecom-Information System was there.
Since 1983, emergency workers
in these disasters — and hundreds
more — have used Research Alter-natives, Inc.'s personal computerbased Emergency Information Sys-tem activates to plan, coordinate and



iternatives President ests, holder of a Ph.D. that information is the critical com-ponent in arriving lives and protecting the environment during dissaster. By combining geographic and demo-pratise data with suphisticated com-puter modeling of the effects of a di-saster, the Emergency Information System acts as the command-and-control conter for emergency efforts. The software is used by more than 100 major chemical and petrochemical companies to do enversement

100 major chemical and petrochemical campanies to do emergency and evacuation planning, lohanon & John-son has installed the product at most of its manufacturing planta in New Jersey and is in the process of bring-ing it to Europe.

"We use Envergency Information System for ... vulnerability assess-

now boasts more than 1,000 installa-tions of Emergency Information Sys-tems in the U.S. and 13 other coun-tries. — Clinton Wilder

available to major financial centers, such as London, Zurich and New Government and Nonprofit Organizations De Anza College

Finding a job is tough during this re-cession, but it's over toucher if rmding a job is tough during this re-cession, but it's even tougher if you are disabled. The Bay Area Coalition for Employment of Persons with Dis-sabilities (BACED), formed in 1987 from 11 San Francisco-area govern-ment and private

piscement agen-cies, uses a 2-year-old compu-ter network to help the disabled tance and time that often pre-vent them from

yest them from
getting job before nondisabled people get them.
Frustrated with a slow, unrefable
job placement system that ran on
telephones, index cards and coffee,
8A/ED frushed Deborah Stern, a setior employment specialist at De
Anna College, a Capertino, Calif.,
community college with a special
education division, bit upon the idea
education division, bit upon the idea

of electronically posting the job list

er, Inc., the Tenderion also has a growing measure of dignity, unity and clout. In short, it has The Ten-

derfoin Times.

This 14-year-old neighborhood news monthly, which is distributed free of charge to some 15,000 readers, is a quadrilingual paper that is available in English, Lactian, Cambo-

Transactive Transa

designers and translators.

Always a figurative lifeline to its polyglot community, The Tender-loin Times is often a literal one as well. During the 1988 San Francisco earthquake, many Cambodian Ten-



they were under strack and find their horses.

The paper ruled an earthquake centre to peen, given it a reader with a centre to peen, given it as reader was eccurring but a lower first was eccurring to the solid medical and underly therefore the centre of the centre o

#### Medicine Joint Center for Radiation Therapy

Slicing off tiny tumors growing near someone's brain stem is tricky basi-ness for even the most adopt neuro-surgeon. Accidentally nicking a nerve that connects the spinal courd to the brain can paralyze the patient. For the past two to three years, some cancer specialists have opted



pringuists a patient's specific tunor you and location.

Takink them uses 12 million flexal transport to the property of the property of the computing power to calculate transport computing power to calculate transport computing power to calculate transport computing source to calculate transport constitution of the computing the computing transport transport power to the computing tof the computing to the computing to the computing to the comp

#### Science

Next Computer, Inc.

Godsilla in alive and well in Tokyo to-day, He also lives in London, Benton, Washington, D.C., Rodwood City, Calif., and other places. This tamed Godsilla, or 2llin for short, lives on Next Computer, Inc. workstations in Computer, Inc. workstations in one of these cities, trans-formed from de-structive force to

tion designed by Dr.R.
Richard Crassilla,
Next'a chief science
state, to must be laid
up to the laid
up to the

mere Netional Laboratory in Liver-more Netional Lab-more, Calif., a 221 ca-pacity in best for loosely coupled ap-lications such as number factorings transaction processing or Carbo — a grant manufacture of the most to be the coupled ap-torior of the coupled ap-lications such as number factorings. plications such as number factoring, transaction processing or "Moste Carlo" — a statistical procedure used to investigate problems such as how neurous interact with mutter. Zilla was co-developed by Josh Doenian, a scientific programmer at Next. — Michael Fitzgerald

Transportation United Parcel Service, Inc.

After Guylord Evans started using United Parcel Service, Inc. 's international delivery instead of air frictional delivery instead of air frictional delivery instead of air frictional delivery instead of air Court Mcsa, Calif., solls ministrare car kits made in Europe. By using UPS made in Europe. By using UPS sould cost and cut delivery time from 10 days to two. UPS would credit Evans a statisfactory.

tion to its International Shipment Processing System (ISPS), which automates all facets of international package transport and delivery. The system enabled UPS to expand to

Seven new, unmanded seven new planning manager.

ISPS is built around an IBM mainframe 35G-byte DB2 database for on-line transactions and butch processing that is linked to remote personal compaters, local-area networks and ber-code scanners.

and her-onde scanners.

By automating accounting, scheduling and tracking functions and streamlining customs and brukerage tasks, the system lets UTS offer constitution, the system lets UTS offer constitution of the system of





on (NSF) for six years, where he was charged with ngthening national scientific and engineering re-rch and education. While at NSF, he created the



Price Waterhouse Information Technology Lifetime Achievement Americ Robert Noyce (postthumous). Sometimes called the father of Sil-citor Maley, Noyce (1927-1990) was a sensinal infi-seou in the electronics industry. He was co-lewestor of the integrated circuit, as well an occlusive to Per-chald Corp., and intel Corp., two of the electronics in-dustry is most influential companies. Noyce was chair-man of Sematech in the time of he does



Siemens Information Technology Leaders' tward for 'Science Education: Gall Mor doctor, a sweeth-grade electroc technology. As maker Jusior High School in Bantestreils. As no rought technology to bear on a whole new busine principle approach to working, with at-risk studie in the of computers and project leases has resulted article reductions in deposits and absentionant was consulted to the computer of the contraction of the co



ISPS automates billing, tariff cation and tax and duty calcula in addition, customs proc expedited by two ISPS fea

#### **NEWS SHORTS**

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BM or step cheesed on chips?

We have he lead in 16th the memory chips — but products used to chips we still about one year sorry. According to a publication of the high-density after membra sheet in its production of the high-density after membra sheet in the production of the high-density after MRSC Corp., and Thubbh up. However, as 18th quibements said the chaps will not be sed in consencration are said into 1902.

prorson joins Paradian board tring Mertil Lynch & Oo information systems cited (Myser Peterna Oose story page 54) wated fitte time in ing on a new responsibility. He was mused hat work to be set of directors at Paralian Congenter, Joc., a Mouttain www. Calif. -based file server worker handed by former MAI set Four Cold, Inc. Executive Olices William B, Patton,

Ford to expond network

AT&T amounted but wask it would entend Ford Meter Co.'s
comparate private voice and data network to 5,500 Ford and
Lincoln/Meterony dealers subsavide. Terms of the contract
for Ford Net were not disclosed. AT&T implemented the origimal Tariff 12 control network for Ford in 1960.

AT&T offers VSAT E-modi AT&T carpine description of the contract value of the three the contract value of the contract value v

Court win for Microsoft
Microsoft and Evere Systems, Inc. was a 13-month-old civil
constructing stage of the construction of t

#### IBM, Apple consider technology exchange

BY PATRICIA KEEFE

Industry speculation ran ram-pant last week about a reported pending alliance between IBM and Apple Computer, Inc. that would give IBM's RISC Sys-tem/6000 chip set to Apple and allow IBM access to System 7.0

atures. The bottom line, according to

industry sources, is that the two companies are talking about technology exchanges around Unix and reduced instruction set A source close to executives in both companies confirmed

Police

prices in the contract of the

that was rance of the Stra earry last year.

Users added that SPA repre-sentatives have dealt with them fairly, and many said that in the end, they were relieved that the raid had forced company man-agement to take piracy serious-

"It was a company policy to "It was a company policy to distribute software freely and have only one license copy," usid Michael Fitzpatrick, competer technician at Versatron Corp., an aerospace design firm in Healdsburg, Calif. Fitzpatrick aid he disagreed with the policy and had recommended to company management that they license all pirated software.

that IBM and Apple have been talking and that an agreement in nearly hammered out.

A user at a large IBM site add-ed that in a recent conversation with an IBM executive, it was "strongly hinted" that IBM would shortly announce an all-ance "that will rock the indus-try."

try."

Another source, citing con-tacts at both BM and BM said that at a meeting last Monday, the two firms talked about sever-al things: some kind of RISC chis seet agreement, interface tech-nology, operating systems and Apple's Quickine multimedia software. IBM is "real interest-

Vernatron ended up paying a \$60,000 fine and was required to buy copies of Autodesk, Inc.'s Autocad, Lotus Development, Ashton-Tate Corp.'s 12-25 and Manuscript, Ashton-Tate Corp.'s not been and other software at full retail paid other software at full retail paid other software at full retail paid price. Fitzpatrick said he has no regrets that the SPA raided in firm. Tru glad they did," he hadd

ed" in licensing part or all of the recently unweiled Quicktime, the

of "in Biomonia part or an offer in Committee of Continues, the converse and.

There are unconfirmed or more continues of the Continues of Continues, Differ and XX and Angle's a XXX. Apple a size, XXX. and Angle's a XXX. Apple a content of Continues, Differ a Continues of Continues, Differ and Continues of Co

## watch as SPA representatives check each hard drive using an SPA product called Spaulit (CW. Dec. 10, 1990). They print out lists of the EXE files on each hard drive. Then the SPA peut together a list of its findings and challenge and the company to prove that it **Eves focus on Trueimage**

Installation, C. Call. Properties and the disapproted with period of the period of the

ontinue unabated. Trueinug ode has been going out to print

cont has been poing out to printer or manufacturems since October. The Trustimage empineering lean, which had been located in Thirwan, will be consolidated at company benefore the consolidated at company benefore the consolidated at company leading control of the company leading control of the company leading control of the company leading control to the control of the control o

## Low-priced IBM 386SXs debut

#### BY RICHARD PASTORE

WHITE PLAINS, N.Y. — The four IBM Personal System/2 models introduced last week drew less attention for what they did have than for what they did not have — namely, IBM-style high prices and the Micro Channel Architecture (MCA).

nel Architecture (MCA).
As expécted, IBM unveiled models based on the Intel Corp. 20-MH: 803865X microprozes. For The diskless Model 35 LS and Model 35 SX are now the firm's low-end 386 entries. The new Model 40 SX offers

more expansion and storage than the Model 35, while the higher end Model 57 SX comes with the 32-bit MCA bus and a new 2.88M-byte floppy disk

pricing for the Model 35 SX and the newspaper and pointing to 40 SX, in particular, unusually aggressive for IBM.

ment Strategies Corp. rated the PS/2 Model 40 SX as a 40% price/ ment over the PS/2 Model 30 286. The Model 57 SX is a 20%

price/performance

Price relief
At New York Life Insurance Co., the list prices, coupled with the typical corporate discount, are a relief from

ernal price pressure.

"Our agents have
n coming to me with

83,625 - 84,195

ed	(IBM) prices	r can justify th	Ca-	and the same and	М
	Base igurations				
Preci Date Month		20 MHz 2005X 20 MHz 2005X Micro Channel 4M bytes 2016 or 60M-bets	20-Mille 2005X ACT ZM bytes 00M- or 00M-loris	20 MHz 3565X AT 2M byten Noon or 4004 byte	20MHz 3MS AT 2M bytes Nune

## Users call DOS 5.0 well-crafted

#### ANALYSIS BY CHRISTOPHER LINDQUIST

MS-DOS 5.0's new features ofnty of improvement over as versions, but there are e hitches corporate users aid watch for in order to

sooth the transition.

DOS 5.0 features an en-med DOS shell, much-improved memory management, a task switcher and more. Elec-tronic bulletin board chatter and tronic bulletin board chatter and interviews with early users indi-cate that Microsoft Corp. did this DOS right. And most users port having no problems whatso-ever installing the upgrade. However, some users should be prepared to perform a few mi-nor medifications to get DOS 5.0

in an immering.

Despite Microsoft's attempts to make DOS 5.0 compatible with the wide range of software for DOS, there are to see the partitioning software for the party disk pa

software drivers with the up-grade package, saving him from having to contact the original manufacturer for an update. Also, users of Logiteck, inc.'s mouse will need to have Version 5.01 or later of the mouse drivers software. Microsoft mause users will need driver Version 6.21 or

track Computer Systems, Inc. a Disk Manager on some Ad-vanced Logic Research, Inc. and AST Research, Inc. systems. Fortunately, he said, hiscosoft

Microsoft supplies READ-ME.TXT and APPNOTES.TXT files, which detail incompatibil-ities and document solutions for many of them. Checking the files could save time on the 90-day free support lines.

tion specific to their syste using the GO MSDOS cor on Compuserve.



a MS-DOS 5.0's features is an enk

POSTMASTER: Send Form 3579 (Change of Address) to Computerwork, P.O. Box 2044, Marion, OH 43306

## DOS upgrade

3540 WGA 81,995 - 82,525 \$2,925 - \$3,195

PIRM INCE 1

2.1 Suprise. There is also a conviction sample (507 2.0 self-conviction sample (5

will match Microsoft's 100% up-prode program.
John Gayer, director of sys-tems at Financial Guaranty In-surance Co., recently downsized his basiness to a Nowell, Inc. Network-based FC network. He is having a problem getting his Netware drivers to trus in the up-per memory blocken getting his Network drivers to trus in the up-per memory blocken getting his recent programs of the con-traction of the c

\$2,865 CW Chart Davies St. John

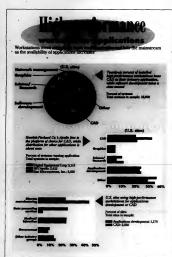
Holmes, who claimed DOS 5.0 'is even better than Microsoft ontiese 'in onetheless'

g and context-s

New York Life, Ortho Pharma-centricals and Swins Bank, will en-gage in massive upgrade pro-grams. Vector Mutnick, no corporate vice president at New York Life, and the easy thing in deciding to go with DOS 5.0. The hard part, he added, in get-ting it done amouthly. Early feedback indicates that

tone of our members, or any other property of the property of

#### **TRENDS**



#### NEXT WEEK

Through an IBM-spon-sored program called Writing to Read, young children are using personal computers to read and computers to read and write more effectively. The program was a finalist in the Third Annual Computerworld Smithsonian Awards, which honor technology applications that have benefited society. Ten of the finalists will appear in In Depth.



D u Pont Co., an infor-mation systems leader in many areas, is attempting to step out front on open systems implementation. Although still in its forma-Although still in its forma-tive stages, Du Pont's Open Systems Program Of-fice is expected to play a leading role in making seamless data sharing an integral part of the \$40 bil-lion firm's global strategy. See Manager's Journal.

### INSIDE LINES

#### Do they know what the 33 m



## The biggest computer news isn't just coming out of Apple. It's going into it.

Despite today's myriad of connectivity options, there's really only one decision to make. And that decision is our new MacIRMA trac. Token-Ring Adapter.



With our replaceable RIM technology,

With DCA's MacIRMAtrac, Macintosh' users can handle many different growth possibilities both now and in the future. This unmatched flexibility is the result of our replaceable ring interface module (RIM) technology that allows a single (RIM) technology that allows a single

token-ring board to adapt in many ways. By offering 4 Mbps and 4/16 Mbps RIMs, and 4/16 fiber optic RIMs in the near future, MacIRMAtrac is truly the ultimate solution to meet all of your token-ring connectivity needs.

For instance, let's say your present cabling method is twisted pair, but you see a move to fiber optic sometime in the future. Well now you need only buy a new RIM to make the change.

As new technologies emerge, new RIMs will let you migrate easily without purchasing another board.

, We also offer the same technology in IRMAtrac," our convertible PC Token-Ring board. In fact, the RIMs are actually interchangeable between MacIRMAtrac and IRMAtrac. Plus, you'll have a single source for purchasing, support, training, updates, and upgrades for your Mac, PC and PS/2\* token-rine network.

DCA's MacIRMAtrac supports all Macs with NuBus (Mac II) architecture and it's fully compatible with AppleTalk.\*
And combined with our award winning
MacIRMA\* WorkStation 3270 software,
MacIRMAtrae now allows you to connect
with more SNA environments than with
any other MacIx mainfring exhibits.

any other Mac-to-mainframe solution. So now, with all the flexibility we offer, you can make the choices that are right for your business without having

to sacrifice your initial investment.

For information on MacIRMAtrac and how to receive your free token-ring board for a trial period as part of our exciting Grand LANplan promotion, just call us at 1-800-348-DCA-1, ext. 68E.

MacIRMAtrac Token-Ring Adapter. Because what you get out of your Mac is only as good

as what goes into it.



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Who just fit
Mainframe Power
in a pizza box?
Data General presents
the AViiON 7000
and 8000 systems.
(Ready for
delivery today!)

down to size.

Data General's AViiON 7000 and 8000 systems
have 117 MIPS of mainframe power that fits in a pizza box!
That's right. The brains of these next-generation Open Systems

These branch disks. Best of a price starting at less than \$100,000and it's available right now and the same short of t

support all the leading databases business applications and communications software. Through advanced symmetric multiprocessing AwikUN offers large scale commercial system performance that used to take up a whole room performance that used to take up a whole room CELIPSE Printly, Data General 22 years of most or our ECLIPSE Printly, Data General 22 years of the choology has been making life easier for a lot of people with your turn. For more information call

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Life just got a whole lot easier!

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